THE INTERNATIONAL EXHIBITION.

APART from and beyond those Illustrations of the International Exhibition to which in each week a large portion of our space is devoted, we give with our present Number several special and characteristic Engravings which are calculated to give an idea of some of the general and broader features of the great exposition of art and industry. In the first place, in the Supplement, which contains two Coloured Engravings, will be found an accurate representation of that part of the opening ceremonial when her Majesty's Commissioners for the opening of the exhibition, headed by the Duke of Cambridge, having taken their places on the dais under the eastern dome and in front of the throne erected for the occasion, and the members of the procession, which had marched up the north side of the nave, having been arranged in front of the place of state, Earl Granville, on the part of the Commissioners for the International Exhibition of 1862, read an address appropriate to the moment. The other Coloured Engraving exhibits Minton's Majolica Fountain as it appears under the eastern dome. Notices of these elegant work of art will be found in another part of this week's number of our Journal. The next Illustration to which we would draw attention is that which gives a long-drawn-out view of the Nave looking eastward. Conspicuous in the foreground is the Venus Anadymene, of the Belgian sculptor Fraikin, and which is the property of his Royal Highness the Duc de Brabant. In the far distance and close upon the eastern dome is to be observed the famous golden Australian obelisk, which has attracted so much observation. An engraving of the Mediæval Court is next to be pointed out, which affords a most accurate pictorial delineation of that magnificent section of the exhibition. It may be as well to mention that the Mediæval Court is situated on the north side of the British portion of the nave, somewhat to the eastward; bounded in that direction by the Colonial Court, on the south by the Furniture Court, and on the north by M. Veillard's refreshment-rooms. In the Mediæval Court the results of the labours and research of the Ecclesiological Society are well and fully represented. We next have displayed two characteristic and spirited sketches of real life at the exhibition. One is entitled "A Half-crown Day at the Great Exhibition," and it is admirably grouped with figures representing what we may call the lounging visitors to the exposition. There is no pressure, nobody is in a hurry, and conversation seems to be as much the object as sight-seeing. In animated contrast to this view of the semi-privileged visitors is another, designated "A Shilling Day at the Great Exhibition." Equally characteristic and true to nature and to fact are the figures and grouping; and, noticeable as is the variety of face and form which are got together in the picture, it does not go in the least beyond the actuality of many a scene which is to be beheld on those days when all the world is present, in a representative sense, at the World's Show.

SILVER STATUETTE OF HIS ROYAL HIGHNESS THE PRINCE OF WALES, EXHIBITED BY MR. EMANUEL, OF BROOK-STREET.

THE OUTRAM SHIELD, EXHIBITED BY MESSRS. HUNT AND ROSKELL.—FROM A PHOTOGRAPH BY THE LONDON STEREOSCOPIC COMPANY.—SEE NEXT PAGE.

Passing to our weekly record of things in general relating to the Great Exhibition, it may be stated that on the last day of the past week one would have supposed that there had been a resuscitation of the London season, so numerous were the private carriages which were to be seen in waiting in the various approaches to the building. As a general rule, since the equalisation of the prices on Fridays and Saturdays, the former has been the favourite day with those for whose behoof the half-crown system has been established. On the Saturday of last week there was, on this account, but a moderate attendance, the numbers amounting only to 21,084. The number of visitors for the weeks ending Aug. 23 are as follows:—

	1851.			1862.		
	Payments.	Season Tickets.	Total.	Payments.	Season Tickets.	Total.
Monday ..	25,622 ..	4,779 ..	60,401 ..	50,136 ..	1,389 ..	51,525
Tuesday ..	49,635 ..	5,227 ..	54,862 ..	55,476 ..	1,603 ..	57,079
Wednesday	54,370 ..	5,577 ..	59,947 ..	44,348 ..	219 ..	44,567
Thursday	52,847 ..	5,144 ..	57,991 ..	49,402 ..	1,080 ..	50,482
Friday ..	17,617 ..	5,998 ..	23,615 ..	15,661 ..	2,317 ..	17,978
Saturday	14,284 ..	6,800 ..	21,084 ..	11,479 ..	3,429 ..	14,908
	244,575 ..	33,325 ..	277,900 ..	226,502 ..	10,037 ..	236,539

From the opening on the 1st of May, down to Saturday, Aug. 23, the comparative returns stand thus:—1851, season tickets, 637,360; payments, 3,329,800: total, 3,967,160. 1862, season tickets, 691,825; payments, 3,019,218: total, 3,711,043. So far, then, the balance against the present exhibition is 310,582 on the money payments at the doors, and 256,117 on the gross total of admissions. It is under the head of season tickets only that there is a numerical increase to be placed to the credit of 1862; and that numerical increase is 54,465. The present period affords a fluctuation in favour of South Kensington, as remarkable as the decline in the fortunes of the Hyde Park show, which occurred in the same part of August, 1851. There was then a temporary falling-off; there is now, let us hope, a permanent rise. But we must remember that, after the lull in the former year, there came an awakening as of a giant refreshed. In fact, there were two seasons in that memorable twelvemonth. London was, comparatively speaking, deserted in August and some part of September; but the town returned to itself a little later in the autumn, and paid hearty honours to the Great Exhibition at its close. The summer season of 1862 has outlived its ordinary term. It seems likely that the number of persons now in the metropolis will hardly diminish, being recruited by arrivals in equal proportion to the departures. But will there be so sudden a rush at the close? Will the International Exhibition receive within its walls such multitudes as thronged the Palace of Glass? It is even doubtful whether there would be room for them all. We know what difficulty there is in moving through the building on a sixty-thousand day. Can locomotion be possible when upwards of 100,000 people are there assembled? One day's total in 1851 reached 109,915, and the average attendance on the shilling days of the final week exceeded 104,000.

One source of profit to which the authorities of 1862 may look with a double pleasure is the liberality of the wealthy classes employing labour and mindful of labour's great requirement—rational relaxation. The large bodies of workmen who may be seen, not only on shilling days, but frequently when the entrance charge is half-a-crown, attest the generous spirit in which this great opportunity has been seized by the heads of large manufacturing establishments. On Saturday Messrs. Penn and Son, of Deptford, treated 1500 workmen, together with their wives and children, to a visit, paying the expenses of their journey and of refreshment in Mr. Morrish's department. Excursionists continue to arrive from all parts of the country, the Great Western line having brought 2500, on Friday, from Bristol and Exeter. Many of these are franked or assisted in their expedition of sightseeing by the kindness of employers.

"The Illustrated Catalogue of the Exhibition" is now complete in two large octavo volumes, and has been for sale in the building in the course of this week. Great pains have been bestowed on this work, and, though perhaps not quite perfect, it is, as a whole, a most careful and valuable record of the International Exhibition. The book embraces a concise history of the undertaking, written by Mr. John Hollingshead. Besides the wood-engravings with which it is embellished, which are to be found on every page, there are some excellent colour-engravings by Messrs. Day and Messrs. Leighton Brothers.

The company at the exhibition and in the gardens of the Horticultural Society have included the ex-Queen of the French, the Duc de Nemours, the Duc de Chartres, and the Comte de Paris. There were also present on the same day Dom Miguel de Braganza, ex-King of Portugal, and a numerous attendance of Portuguese gentlemen, among whom were M. de Lancastre, representative of the ancient house of the Marquises of Abrantes, Dom Antão d'Almada, the Comte de Bobadela, and Colonel Tavares Osorio. The Brazilian Court engaged the special attention of this distinguished party, who were received by the superintendent of the department, M. Francisco Oliveira. There has been a more than ordinarily full allowance of music on most days. Some excellent performances have been given by Miss Beatrice Jenkins, Mr. John Barnett, and other musicians, on the fine pianos of Messrs. Kirkman, Cadby, Allison, and Wornum.

A new department has been just added to the exhibition. That department represents a State—a kingdom. King Kamehameha IV. does not figure in the *Almanach de Gotha*. He is not Monarch of any European country, but of a little group known tolerably well to readers of "Captain Cook's Voyages" as the Sandwich Islands. He is, nevertheless, a Power; and that her Britannic Majesty has received a tangible proof of friendliness from the Hawaiian sovereignty is a fact not the less gratifying to Englishmen from the little circumstance that the new display of objects in the International Exhibition has arrived through Lady Franklin's hands. It is to her Ladyship, as ambassadress or feminine commissioner, that we owe this interesting collection. A cabinet of koawood, presented by the King to Lady Franklin, shows the usual dexterity of carving among savage, or lately savage, tribes. Hawaii is evidently rising in the scale of nations. The people, who once wore nothing but a few feather ornaments and a string of shell-beads—there are specimens of such attire in the Hawaiian Court—now dress in Manchester cotton, have treaties of commerce with other nations, print books and newspapers, and enjoy a Constitution and a Parliament. In one of their atlases, here exhibited, the kingdom of "Beritanie" is at once recognisable for Great Britain. They show, also, a Bible in the native language, and printed and bound by native workmen. Visitors desirous of inspecting the newly-arranged department will find it near the Japanese collection.

A rival to Mr. Linton's mechanical singing bird, which is again going through a fearful amount of exertion on behalf of the distressed Lancashire operatives, has been brought into the exhibition. It is to be found in the Austrian Court, and is, in fact, a singing machine which imitates the human voice; but, as may be supposed, without articulating, or giving utterance to anything like words.

THE OUTRAM SHIELD IN THE INTERNATIONAL EXHIBITION.

SIR JAMES OUTRAM, the "Bayard of the East," as his admirers have very truthfully named him, has recently been presented with two very important and handsome testimonials, manufactured by Messrs. Hunt and Roskell, of New Bond-street; each of them being a work of art different in character, and of great, if of unequal, merit. Both form conspicuous objects in the case of the manufacturers.

That which we this week engrave consists of a large shield of oxydised silver, iron, and steel, richly damascened in gold. The *entourage* of the shield illustrates some of the most important events in Outram's career, commencing with the subjugation of the Bhils in 1822, and terminating with the relief of Lucknow in 1857. It is in low relief, skilfully divided into six subjects:—The subjugation of the Bhils; the civilisation of the same tribe; Meer Noor Mohammed Khan, a dying chieftain, consigning his son to the protection of Colonel Outram; the defence of the Residency at Hyderabad; the charge of the 3rd Bombay Cavalry on the Persian square at the battle of Koosheb; and the charge of the Volunteer Cavalry commanded by Sir James Outram before Lucknow. The centre group, which is in high relief and treated somewhat conventionally, represents Sir Henry Havelock, after the relief of Lucknow, restoring to Sir James Outram the command of the British forces, which command Outram had chivalrously allowed to remain with Havelock rather than at the full tide of success subtract from the fame which Havelock would have won by keeping it, Sir James having been appointed by the Governor-General at that critical period.

A small circle of steel damascened with gold, which separates this from the low relief, contains eight medallion portraits of Sir James's companions in the Lucknow campaign—Sir John Inglis, General Niell, Sir Robert Napier, and G. E. W. Couper, of the Bengal Civil service; and of Sir Edward Lugard, General Walker, General Jacob, and the Rev. C. P. Badger, his companions in the Persian War.

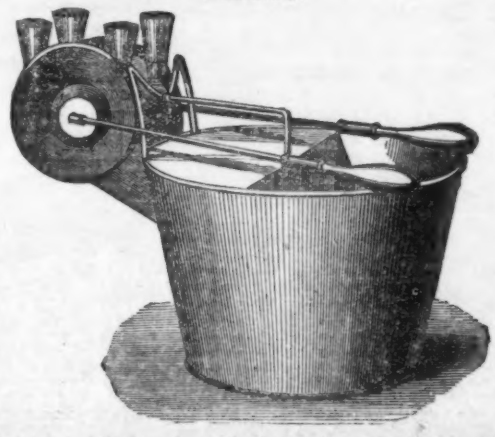
The inscription dedicates the shield to Lieutenant-General Sir James Outram, Bart., G.C.B., "in token of the affectionate regard of his friends and admirers and brother officers, and in appreciation of his sterling and brilliant qualities which have ever marked his career, and in lasting testimony of his gallantry, self-devotion, and highly chivalrous bearing during the operations attending on and following the relief of Lucknow, 1857."

The shield is worthy of the great man to whom it is dedicated; it is a noble and conscientious piece of art-work, conferring great credit on the artist, Mr. Armstead, and the manufacturers who produced it. It moreover indicates great progress in art, and, although not without faults, is one in the production of which both this country and age may well feel proud.

SILVER STATUETTE OF THE PRINCE OF WALES IN THE INTERNATIONAL EXHIBITION.

THE statuette of his Royal Highness the Prince of Wales, exhibited by Mr. Harry Emanuel, is a very spirited and artistic work, and has been produced in oxydised silver so as to give greater effect to the work of the artist. The Prince is represented as Colonel of the 100th (Royal Canadian) Regiment, acknowledging a salute bare-headed, and with his hat in his hand. His charger is at the same time pawing the ground in a very spirited and free manner; indeed, there is much force and fire in the horse, whilst the pose of the Prince is graceful and his seat sound and horsemanlike. When one considers how many unsuccessful equestrian statutes are before the public, how King William "sits on his horseback" at Dublin, Peter the Great at Moscow, and George IV. at Trafalgar-square—spectacles of hideousness and awkwardness much to be regretted—we may well congratulate the artist, Mr. Marshall Wood, on the success and beauty of his performance. The manufacturer has very wisely determined to reproduce this work in bronze, and, doubtless, many who are not prepared to purchase the figure in one of the precious metals will yet be rejoiced to possess a copy in a metal almost as beautiful, more fitted for artistic purposes, and even more enduring.

THE PATENT COW-MILKER IN THE INTERNATIONAL EXHIBITION.



WE seem quickly to be losing the poetry of rustic life. The mower is no longer required at the scythe, nor the reaper at the sickle; that bent figure at the barn-door swinging to the music of the flail is gone; the whistle of the ploughboy is gradually dying in the distance; and now we are called upon to dismiss the ruddy milkmaid. A machine has been invented for milking cows, and is now on exhibition in the United States' department of the International Exhibition. The teats of the cow just drop into four elastic tubes placed under them, in communication with an exhaust apparatus and a reservoir. The quick movement of two handles creates a vacuum, and the udder is instantaneously emptied of its contents in four continuous streams. While the operation is distressingly practical, it is very cleanly, and, we believe, agreeable to the cow. The milk is withdrawn at the rate of a gallon a minute. The patent of the "cow-milker" has been sold to Watkins and Keene, of Birmingham, for £5000, and a royalty to the original inventors; and it is stated that the firm have already received orders sufficient to cover the expenses of the patent, and that the machine is rapidly being adopted by all the great dairymen throughout the country. A prize medal and honourable mention have been awarded to the patent milking apparatus.

Sir David Brewster, writing in *Good Words* on the illusions produced by the two eyes of a person combining the pictures of objects formed on their retina, says:—"In the decoration of our apartments, and in dresses, male and female, small recurring patterns should be avoided, and particularly small squares. The observer can hardly avoid uniting these squares or analogous figures in female dresses, thus causing part of the dress either to bulge out or sink into hollows, a result which, while it gives pain to the eye of the observer, does not improve the person who is observed."

A new gunpowder was tried at the late Frankfort shooting-feast, apparently with success. Its merits are a lower price, a less weight, a more effectual action than the general powder, to which a more important merit is added—that after thirty shots it left the barrel as clean as it was before firing. Its colour is yellowish brown; it is granular, and looks like decayed wood ground small. The inventor is a Prussian Artillery Captain in Spandau, and his invention is being tested by the Prussian Government.

WELL-KEPT BUTTER.—In 1814 (says the *Journal de l'Aisne*) a woman of Cussy, being surprised by the Cossacks, concealed a crock of fresh butter, which she did not want them to have, in a field near her house. After the departure of the foreign visitors she endeavoured to find the exact spot in which the butter was concealed, but did not succeed, and after a while the whole matter was forgotten. Last week some workmen digging for the foundations of a house came upon the pot in question, and on opening what they expected to be a treasure, discovered the butter as white and firm as when buried forty-eight years before.

POST-OFFICE SAVINGS BANKS.—Although the Post Office authorities preserve a silence which is only broken at rare intervals with respect to Post-office savings-banks, some particulars of their progress occasionally transpire, and show that, in spite of the general depression of trade and the distressed condition of particular districts, these institutions are rapidly obtaining a business of enormous magnitude. For instance, the acknowledgments for deposits, which are sent from the General Post Office to the depositors, are printed with consecutive numbers, and we have recently seen acknowledgments the numbers on which showed that there have already been more than 360,000 deposits in the Post-office banks, although those banks have only been in full operation for little more than five months. The amount of deposits in them must also be very considerable. Those of our readers who are depositors know that each Post-office bank issues its own sets of depositors' books numbered consecutively, and we know of many Post-office banks, each of which has issued books to more than 300 depositors, whilst several of these banks have gained more than 1000 depositors. The rapidity and precision with which the enormous business of the Post-office banks is transacted is truly remarkable, as those who have had occasion to withdraw from a Post-office bank will admit. We know of a case in which a man who had deposited money in a Post-office bank in London, and whose occupation compelled him to visit a town in the north of England, had occasion for a portion of his money. He wrote in the usual way for the money to the General Post Office on a Thursday night, and on the morning of the following Saturday the money was paid to him at the Post-office of the town in which he was staying. The trustees of the old savings-banks, who have in many instances maintained their establishments at a considerable sacrifice of time and labour, and from purely benevolent motives, are rapidly determining to transfer the labour and responsibility to the shoulders of the Government.—*Observer*.

A LADY'S GLANCE AT THE INTERNATIONAL EXHIBITION.

NO. V.—FURS, FEATHERS, AND HAIR.

THE chief subdivision of the class which we now propose to select for examination is one which depends very much on circumstances for its attractions, and it must be acknowledged that these are not at the present season peculiarly favourable to its due appreciation. No one cares to linger before a furrier's shop in the month of August. Such repositories seem to wear during the summer season an indifferent and despondent aspect, as if conscious of this inevitable neglect: they were patiently biding their time until the first frost of October should bring admirers in abundance for the manifold resources then put forth. But in the exhibition we are no longer conscious of times and seasons. Even the feeling of locality becomes vague when we find ourselves surrounded by emblems of those wonderful diversities of condition which the world affords, and which are thus brought home so forcibly to our perceptions. Everything then seems to come fitly before us as a link in the great chain of merciful providential supply and intelligent human adaptation; and, from this point of view at any rate, we may venture, even in the sultry month of August, to enlarge on the beautiful display of furs and skins chiefly situated in the nave and south-eastern transept of the International Exhibition.

It is of course well known that the animals which supply the most beautiful and effectual defence from cold are inhabitants of the Arctic or northern regions, the zoology of the temperate and tropical zones affording skins which are more adapted for leather, as the hair, though often splendid in colour, is harsh and short, suited to the peculiarity of climate. The two great fur-hunting grounds of the world are Russia, with its Asiatic dependencies, and that immense tract of country in North America the produce of which is monopolised by the Hudson's Bay Company, and by their agency diffused over the globe. The most aristocratical of the different varieties of fur are supplied by Northern Europe and Siberia, the Russian sable taking precedence in value over every other skin, except that of the sea otter, hereafter to be noticed, and perhaps one or two rare descriptions of the fox. The Russian sable is distinguished from its American rival by the length and fulness of its fur, no less than by its darker colour and glossy softness. A specimen of first-rate quality is worth as much as £10, the minimum price being £2 or £3; and, as four or five skins are used in the construction of a moderate-sized muff, the high price affixed to various sets of this fur exhibited by our principal furriers will not surprise the initiated. Even the minute coverings of the paws are, in the case of this little animal, esteemed of sufficient value to be joined together for linings, and for this purpose are exported to countries where labour is inexpensive. The portion of skin lying under the jaw, which is lighter in tint than the other parts, is also united to similar pieces and sold under the name of sable gills. About 25,000 skins are annually collected in the Russian territory, of which a very small proportion is imported into England. A favourite present to those whom the Emperor and other great potentates delight to honour is a goodly lining of this fur, the value of which may amount to £1000; and in addition to this special consumption there is an extensive private demand among the higher classes of society in Russia which must always compel the majority of English fur-fanciers to content their ambition with more abundant varieties of marten skin, all passing under the same generic name. Of these the Hudson's Bay sable ranks deservedly the highest. It is an excellent fur, and in its best quality scarcely inferior in intrinsic beauty to the Russian, which exceeds it about fourfold in price. The colour, however, is always some degrees lighter, and the aid of the dyer is very frequently called in to adapt these skins more closely to the established standard of beauty. About 120,000 are annually imported into this country, and are chiefly reserved for home consumption. To the same family belong the baum or pine marten, always found in the depths of some extensive forest remote from the habitations of men, and the stone marten, so called from its habit of selecting rocks, ruined castles, &c., for its haunts. Both are denizens of Europe. The skin of the former species is brown, the throat alone being yellow; that of the latter shades through various tints of a bluish grey, being generally assimilated to the colour of the rocks amongst which it is found: the pure white of the throat is also a distinguishing feature. The fur is in each case soft and good, and very effective when dyed. The French excel especially in the preparation of the stone marten, which is often known by the name of French sable in consequence; it may generally be recognised as much colder in tint than its rival the pine marten, which in its manufactured state approximates closely to the best sable. Among the inferior representatives of this fur may be enumerated the mink, which is imported in large quantities by the Hudson's Bay Company; the hair is short but glossy and of good colour; the fisher, a North American animal, larger than the sable, with long, full fur, and a round, black tail tapering to a point, which some years since formed the usual decoration of the national cap worn by the Polish Jews; lastly, the kolinsky, or Tartar sable, which is occasionally made up in its natural state, and is then bright yellow without spot or mark of any kind; more commonly, however, it is dyed the favourite dark brown and used as an imitative fur.

The ermine, justly held by us in great esteem, is, like the best sable, peculiar to Northern Europe and Siberia. This little animal is always hunted in the winter season when its coat assumes the snowy aspect of external nature; at other periods of the year it is a dingy brown, and much resembles that of the common weasel of this country. Specimens of the stuffed ermine in its highest perfection are exhibited by Mr. Nicholay, and the range of natural history can scarcely afford any prettier object than this little white-coated animal, with its dainty yellow and black tail from which the manufactured fur borrows so much effect. In consequence perhaps of its regal and judicial associations, we are disposed to attach in idea an unduly high value to the ermine, which, having been abundant of late, is not one of the most expensive furs. In connection with it should be mentioned the miniver, which is simply the white ermine skin powdered over, as it is called in heraldic language, with little black tufts taken from the paw of the Astracan lamb. It is in this form that it figures so extensively in our coronation ceremonies, being completely studded over with black spots if the wearer be of Royal blood, and ornamented with a prescribed number of rows indicative of their rank in the case of peers and peeresses.

Scarcely less attractive than the ermine, and about equal to it in value, is the grebe, a fur, or rather down, taken from the breast of a duck which inhabits the Swiss lakes; it has gained great favour here during the last few years, and is extremely durable both as regards substance and colour. The aspect of this glossy skin, which shades from creamy white to silvery grey, is no doubt familiar to our readers; in the exhibition they will have many opportunities of rendering justice to its elegance and adaptability. We must not omit to mention among the furs especially suited to feminine uses the delicate chinchilla, though of late it has found a more ready market in France, Germany, and Russia than in our own country. The animal which supplies it is a native of South America, combining the agility of the squirrel with the burrowing habits of the rabbit. The best specimens come from Buenos Ayres; Lima exporting skins of which the fur is, in comparison, poor and scanty. Hitherto we have discussed only the furs in which English ladies take a practical interest; but there are, of course, further varieties, some of which are pre-eminently valued in other countries. Among these the fox tribe, chiefly reserved for the Russian and Chinese markets, occupies an important position. The black and silver fox skins from the Arctic regions are very precious, varying in price from ten to forty pounds each. A lining presented by the Emperor Alexander to George IV. was valued at a thousand pounds; and the Imperial pelisse exhibited on the occasion of the last exhibition was, it may be remembered, estimated at three times that sum. The cross, red, white, and blue foxes are less rare; the two latter varieties are used in this country, though only to a small extent. Much difference of opinion has existed as to the exact degree of relationship between these animals, so diverse in outward appearance. They have been generally regarded as distinct species, though it has been asserted by trappers that the same litter will often afford furs of three distinct colours and characters. The method of preparing skins for ornamental purposes varies somewhat in different countries. Here it is the custom to trample them in tubs with a little salt butter, by which means softness and ility are obtained. An instrument of blunt

iron is then passed over the skin to reduce and equalise the substance; the fur is again repeatedly trampled with sawdust, to cleanse it from grease, and then passes into the hands of the cutter, who fashions it to its destined form.

It would be impossible to point out any collection of furs in the International Exhibition exhibiting greater beauty of finish or perfection of quality than those of George Smith and Son, of Watling-street, situated just under the north-west gallery, and almost within the territories of Turkey. To it we would direct especial attention as a beautiful object and as affording a most complete illustration of our preceding remarks on furs in general. The pillar which supports the large circular case forms a kind of skin trophy, various descriptions of sable and the eight varieties of fox being suspended from it. Beneath are disposed magnificent paletots, with smaller articles intermixed. The most striking feature of the group is a mantle of pure white ermine, without the usual intermixture of tails, but trimmed with a broad border of delicately-marked chinchilla, which adapts it for an elegant half-mourning costume; in conjunction with black or grey nothing could be more distinguished. For more ordinary purposes a fur seal trimmed with grebe is very beautiful; the rich brown of the principal material contrasts well with the creamy tint of the border; this borrows additional effect from a peculiar roundness not to be obtained in any other fur trimming. Again, we have seal edged with ermine, and also with beaver, which, even when beautified by art to the utmost, seems scarcely worthy of such association. A great effort has been made of late years to render this skin acceptable to ladies, as it is so entirely superseded in the manufacture of hats, and this object has been facilitated by an improved method of dressing. The coarse hairs are removed, and the surface evenly cut by a machine resembling that used in dressing cloth; the white wool from the under part of the beaver is manufactured into bonnets, which have met with considerable success in Paris. In addition to the articles already mentioned Messrs. Smith display two other paletots of ermine—one adorned in the usual style, the other minivered in a scalloped pattern round the edge, together with specimens of sables and other furs, the colour and finished appearance of which would strike even an inexperienced eye and merit the highest commendation from those accustomed to compare and discriminate.

The handsome trophy of Mr. Nicholay, the Royal furrier, to which we now proceed, forms one of the most attractive ornaments of the nave, affording as it does many illustrations of the natural history as well as of the application of furs. Here the Russian sable is to be seen in perfection. A complete set of it, including trimmed velvet mantle, is valued at £500. In another instance we find the tails retained and appended, as in the case of the ermine, for ornament. The same novel style of manufacture is adopted in the instance of the Siberian squirrel. A large circular cloak of this useful but rather despised fur gains much in effect from the darker tails which adorn its surface. Among the skins exhibited as trimmings for mantles, and still more extensively for gentlemen's apparel, are some varieties of the lamb, which amount in all to nine distinct species. Of these the most beautiful are the Astracan, black and grey. The former animal affords a short, wavy, and very bright fur, resembling watered silk. The Persian lamb owes its chief attraction to the minute curls formed by the hair, which, however, are artificially obtained, for the animal as soon as born is tightly sewed up in a leathern skin to prevent these curls from expanding, and is not released until the desired result is obtained. The other descriptions of lamb skin extensively used in the countries which produce them need not detain us from more attractive objects. Of course, the seal is well represented, not only in the form of paletots trimmed with various other furs, again including the beaver, but even employed as the covering of a bonnet, which, edged with miniver and decorated with a plume of white feathers, would appropriately complete the sleighing costume of a northern belle. For the benefit of those who are not acquainted with the method of dressing the seal, and who may be curious to know how it becomes transformed from a grizzly long-haired fur into the exquisite velvet-like substance in which Mr. Nicholay exhibits it in various stages of progress, we just state that it is the practice to shave off or otherwise remove the long coarse external fur which protects the animal in its native element; by this means is displayed the undergrowth of soft curly yellow down, which is artificially straightened and dyed a rich vandyke brown. Among the treasures of this collection is a sea-otter skin, worth £50 in its rough state. This species, allied in habits to the seal, is found in the North Pacific Ocean, but never in large numbers,—hence its extraordinary value. The fur, dark in colour, and very thick and soft in substance, is from its weight unfit for ladies' use: it is highly prized in Russia, and in China is said to be the established decoration for robes of state; here there is no demand for it in any form. The general effect of Mr. Nicholay's trophy is heightened by the display of some stuffed animals which must in their day have been kings of the desert, and of magnificent rugs and mats of variously-arranged skins destined for the carriage or drawing-room. Among these we noticed none more beautiful in colour and marking than the one composed of our English fawn, which seems especially adapted for this purpose.

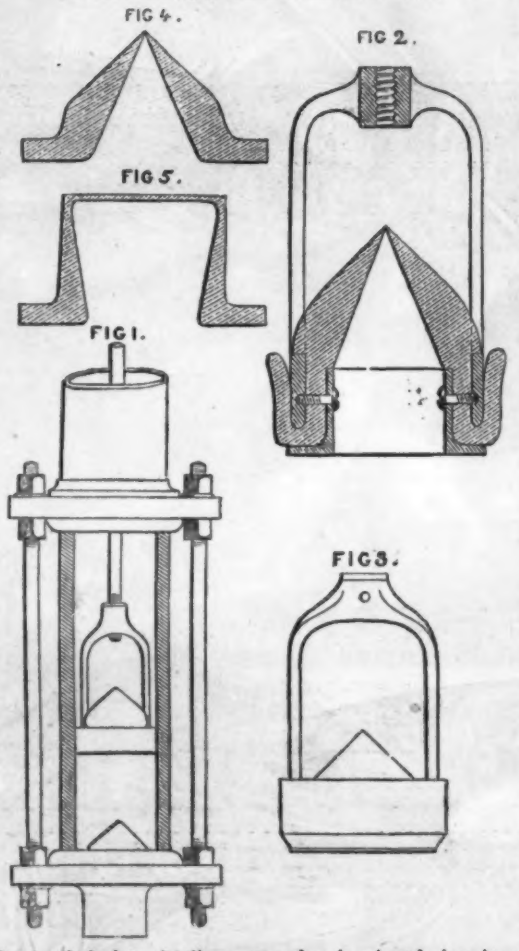
Crossing to the southern side of the nave, we find immediately opposite the assortment of Mr. Nicholay another elaborate display of furs furnished by four well-known firms. Messrs. Poland challenge attention by the exhibition of a splendid rug of the white Arctic fox, and of large cloaks of sable and ermine, less elegant in form than others to which we have referred. The neighbouring compartment of the same case—that of Mr. Jeff—contains, in addition to specimens of ordinary furs, a swan muff and tippet from Holland, and a curious mantle formed from the crest and neck of the king eider duck, which presents a kind of green and black pattern on a white ground. Messrs. Ince and Bevington and Morris, exhibitors with those already named, show good furs of the usual character. The other representatives of the trade are located in the south-east transept, where other subdivisions of class 25 are also to be sought. The only novelty we observed there was a style of manufacturing ermine adopted by Mr. Drake, of Piccadilly, in which the tails form a kind of fringe or border to a cape of this fur.

The contributions of Russia are, on the present occasion, very unsatisfactory, no attempt having been made to display the productions of that country in anything like a complete or ornamental form. We find two carpets of manufactured fur and an elegant mantle of down with a border of a darker colour introduced; otherwise there is nothing to chronicle beyond a collection of undressed skins, limited in quantity and of no special rarity. The visitor should, however, seek out a case of stuffed sables, comprising eight species, all of Russian origin. They are exhibited by Mr. Alibert, and occupy a deservedly prominent position in the nave. Although a few scattered specimens of fur will be found in other parts of the building, they are not of sufficient importance to demand notice at our hands; but, in concluding this branch of our subject, we may appropriately quote some valuable remarks made by Mr. Nicholay, an eminent authority, on the best means of preserving furs from injury. They should never, he says, be put away for the summer and forgotten, as so frequently happens. Their greatest danger is from damp and moth; thus, if they happen to have been exposed to rain they should be immediately dried at a moderate distance from the fire; when put away after winter use they should be closely packed in linen or brown paper to preserve them from the moth, having been previously well beaten with a small cane, and carefully combed through; this process should be repeated at least once a month, and may be relied on as effectual.

In proceeding to section B of this class our attention is chiefly claimed by the ostrich-feather trophy of Messrs. De Costa, Andrade, and Co., which contains, of course, specimens of first-rate quality, to which the art of the dyer has lent every possible attraction. As many as ten different colours or tints are presented in one single feather, and so carefully regulated that each adds to the brilliancy of the other. The white plumes are examples of purity of colour and excellence of finish; they were selected from 5000, and it is not an uncommon thing for double that number to be examined before a feather of pre-eminent excellence can be obtained. Among other beautiful and costly objects in the same case is a pelerine and muff of white marabout feathers, so carefully put together as to present a perfect imitation of fur. The collection of this firm is completed by the exhibition of white, grey, and black ostrich feathers, in their rough state as sent from the Barbary States and the Cape of Good Hope, and these tend to heighten our admiration for the art which ultimately effects so complete a transformation. The only assortment of feathers which can be said to compete in any degree with the above is that of Sugden and Co., which is very fanciful in style. Every possible combination and adaptation seems to have been thought of; but these are often unpleasantly suggestive of mutilation, as in the case of ostrich feathers sprinkled with snippings of cocks' plumes or the eyes of a peacock's tail. The coiffures of feathers are various, and in some instances tasteful. The delicate plumage of the marabout stork is seen to great advantage, arranged somewhat in bird-of-paradise fashion, and coupled together by a brilliant hummingbird. A veil of marabout fibres is also an ingenious novelty.

As regards the third subdivision of class 25, suffice it to say that artificial hair, suited to every requirement and demand, may be viewed in its allotted position. Flowing white locks for majestic old age, or, if preferred, a light sprinkling of grey hair to assist the expiring efforts of Nature; wigs adapted to middle life more or less advanced, and so distinct in character, no less than in colour, that it would be impossible to associate them in idea with any other than the destined type of wearer. Even the possible need of our African brother is provided for; and, having adverted to this example of forethought on the part of our coiffeurs, it is almost needless to add they are prepared to mimic even the strangest vagaries of Nature.

PERREAUX' PATENT PUMP-VALVES IN THE WESTERN ANNEXE OF THE INTERNATIONAL EXHIBITION.



THIS method of constructing pump-valves is extremely ingenious, simple, and efficient; it is copied from the valves contained in the human heart. Perreaux' valves are made of indiarubber vulcanised for the purpose; they are of the form of a tube flattened at one extremity, similar to the mouthpiece of a hautbois. A reference to our Illustration will give a better notion of it than any written description possibly can. The thickness of the sides of the upper part diminishes gradually to the top, where the two sides meet and form two lips, which when the valve is in a state of rest are in close contact, and prevent the downward passage of the fluid. With any upward pressure the lips freely separate and allow of the upward passage of the fluid; the gradual diminution in the thickness or tapering of the sides forming the lips of the passage enables the valve to open and close with the slightest variation of pressure. The passage for the fluid through these valves is larger than in any others of the same dimensions; they also possess the advantage of having a "clearway," there being nothing whatever to retard the flow of water; and, owing to the self-acting principle imparted by the elasticity of the material, they close perfectly and instantaneously the moment the pressure from below ceases. The lips of the valves being flexible and elastic, any foreign substance which may enter the suction-pipe, such as sand, gravel, coal-dust, cinders, grain, cotton, tow, rags, chips of wood, &c., passes freely through without in the least interfering with or deranging the action of the valve; semi-fluid material, as tar, passes freely through. Should a pump of this description remain dry for any length of time it requires no priming by pouring water into it, as other pumps do, but is always ready for immediate use. In practice these valves answer exceedingly well; they are extensively used in soap and alkali factories, and by paper-makers, tanners, bleachers, and dyers, in pumping paper-stuff, chemicals, tan-liquor, &c. Fig. 1 in our Illustration represents the section through the pump-barrel; fig. 2 the section of an ordinary bucket; and figs. 3 and 4 are sections of foot-valves. The pumps exhibited have glass cylinders or barrels, so that the action of the valves may be seen. It is found advantageous to use glass barrels for these pumps, as they are free from corrosion and lubricate themselves with the material which is pumped through them.

The report of the Select Committee appointed to inquire into the operation of the present system of payment of the expenses of prosecutions, with reference to the due administration of justice, has just been issued. The Committee simply state that they do not feel justified in making any specific recommendation founded on the evidence which they report.

Dr. Mueller, the famous Australian botanist, has just published the first of five volumes "On Plants Indigenous to Victoria." He is also about to publish a description of the plants discovered in North-Western and Central Australia by Mr. Gregory and Mr. Stuart respectively, and also of North-Western Australia, by Mr. Stuart, in Central Australia, those preserved on board the steamer Victoria during her voyage through Torres Straits to Carpentaria and back. Dr. Mueller is also about to assist Mr. Bentham, the distinguished English botanist, in his great work on the flora of the entire Australian continent.

The Conway, of 1156 tons, belonging to Mr. E. de Pass, Captain Spence, sailed from Southampton on Sunday week for Brisbane, Queensland, with 396 emigrants, of whom 219 were English, 140 Scotch, and 8 Irish. They comprise 48 married couples, 88 single men, 141 single women, 29 boys, 34 girls, and 6 infants, the whole under the charge of Surgeon-Superintendent J. G. Winstone. Mr. R. E. Pym was appointed schoolmaster, and Miss Pym matron. A large number of the emigrants were nominees of land purchasers, and among these about 100 were nominated by Miss Rye. Mr. R. A. Smith, the emigration officer at Southampton, assisted by the Rev. N. Cotton, distributed the sum of £126 15s., a portion of Kelsall's Emigration Charity, among the most necessitous cases in this ship.

FIGURE IN VULCANISED INDIARUBBER IN THE INTERNATIONAL EXHIBITION.

VULCANISED indiarubber, or caoutchouc impregnated with sulphur, although invented only a few years ago in America, has already been applied to numerous purposes, and promises to be still more serviceable in manufactures and the arts. This material may be cast or moulded, and used for any plastic purpose. It is flexible, yet endowed with the consistence of whalebone or horn. It has the extremely valuable quality of resisting perfectly the influence of the weather or water as well as the action of all kinds of alkaline solutions and acids, and hence is superior to bronze and the metals, even including the precious metals. Its capabilities of resisting the action of the atmosphere, rain, snow, frost, heat, and lightning, has been demonstrated by its use for some years in the manufacture of "insulators" for the wires of electric telegraphs, &c., without the slightest alteration of surface and with perfect insulation. It affords advantages, especially in its less liability to injury, over all the materials, such as glass and porcelain, used as nonconductors. The qualities we have enumerated seem to indicate that vulcanised indiarubber is also a far better material for perpetuating, multiplying, and consequently diffusing and rendering attainable, the works of the sculptor than any hitherto used; and any doubts of the possibility of its employment in sculpture are set aside by the fine lifesize statue we have engraved. Vulcanised indiarubber is not liable to discolouration and corrosion like bronze with its patina; and, although devoid of the beautiful, soft, fleshlike semi-transparency of marble, the reddish, ochrous hue of this statue testifies that it can be agreeably coloured in the mass, while we presume it is hardly possible to chip or break it like marble.

This statue is contributed by Herr H. C. Meyer, jun., the proprietor of the extensive manufactories and warehouses at Hamburg for the production and sale of whalebone, rattan, ivory, canes, and fancy woods in the rough, and manufactured into walking-sticks, umbrellas, brushes, combs, &c. Herr Meyer is also the exhibitor of the large trophy of these articles under the western dome. The statue is situated not far from this trophy, at the entrance to the Hanse Town Department, under the south-western gallery. The modelling of the statue was intrusted to the Hanoverian sculptor, Herr Engelhard, and it was prepared expressly for this exhibition. Independently of the interesting nature of the material, the statue has very considerable artistic merit: the character is appropriate and the action descriptive. The figure is intended to represent Hermann (the Arminius of the Roman historians), the son of Sigmier, the chief of Cherusci, one of the tribes of North Germany, after the victory gained over the Roman legions under Quintilius Varus, in, as is supposed, the Teutoburg Forest. The head is surrounded with the victor's wreath, the foot rests on a Roman eagle, and the sword is being sheathed triumphantly. Hermann was sent when a youth as a hostage to the Court of Augustus, but though treated by the Emperor with kindness, and even distinction, he seems to have secretly cherished nothing but hatred towards the Romans, and on his return resolved to deliver his country from their dominion. Varus, the Roman Governor in Germany, had rendered himself especially obnoxious for his rapacity, and Hermann, under pretence of guiding him to a favourable position for attacking some turbulent neighbouring tribes of Germans, led him into an ambuscade which Hermann had preconcerted with these tribes. Hermann, placing himself at their head, led the attack upon Varus and the several legions he had with him, and the whole force, unable from the nature of the ground to form or act together, was destroyed in detail. This defeat created great alarm in Rome, and by it the Romans lost all their conquests beyond the Rhine, and did not afterwards recover anything like absolute undisputed sway over North Germany. Hermann remained for twelve years the leader and champion of Germany, but he was subsequently defeated by Germanicus, and ultimately killed by his own relations.

"THE WOUNDED ACHILLES." PLASTER STATUE. BY CARL CAUER. IN THE INTERNATIONAL EXHIBITION.

THIS statue is a conspicuous object under the western dome of the International Exhibition. Its sculptor is the brother of the Robert Cauer whose charming statuette of "Paul and Virginia" we engraved a short time since. The father, Emil Cauer, is also an exhibitor, and all three sculptors have their atelier at Creuznach, in Rhenish Prussia.

The action of Achilles endeavouring to extract the arrow from his heel, and his heroic expression "dignifying pain," are very good; but, in some respects, the model scarcely supports the sculptor's reputation, some parts of the anatomy not being correctly expressed. The occasional puffiness of the muscles might, it is true, disappear in the finished statue; but the extremities are too small, and there is too much weakness in the tendinous parts for the mighty hero of the "Iliad," making due allowance for his agility and swiftness. The death of Achilles is only alluded to in the "Iliad;" but it is expressly mentioned in the "Odyssey" that he fell in the battle at the Scæan gate before Troy was taken; but his conqueror is not named. His mother, the Nereid Thetis, told him when a boy that his fate was either to gain glory and die early, or live a long but inglorious life. We know which this "favourite of gods and men" afterwards chose. By later poets and mythographers various stories are told of his death and the vulnerability of his heels and ankles. His mother, who, as a sudorific and purgative precaution, is said to have sent him to bed at night in fire, much to the astonishment of paterfamilias, Peleus, King of the Myrmidones, and to have anointed him with ambrosia by day to cool any unpleasant titillation, is also represented in another account to have given him a bath at a temperature of 212deg. Fahrenheit, and found him immortal in every part except the ankles, where he objected the water felt hot very. Other accounts state that the strong-minded woman endeavoured to make him immortal by dipping him head foremost, like a regular Brighton professor, in the Styx, but that, in her over-anxiety, she forgot the ankles by which she held the struggling and gasping infant.

The accounts of his death also differ very much, though all agree in stating that he did not fall by human hands, or at least not without the interference of the god Apollo. Some say that Apollo killed him in propriâ personâ as he had been foretold; some that he assumed the appearance of that dandy and scamp Paris in doing so; whilst others say that Apollo merely directed the weapon of Paris and thus caused his death, as had been suggested by the gentlemanly Trojan the dying Hector. Yet another authority relates his death thus:—Achilles loved Polyxena, a daughter of Priam, and, tempted by the promise that he should receive her as his wife if he would join the Trojans, he went without arms into the Temple of Apollo at Thymbra and was assassinated there by Paris, and that his body was rescued by Odysseus and Ajax, the Telamonian. So, according to this, a woman was at the bottom of the hero's death, as well as the whole Trojan war and all the rest of the mischief in the world.

This legend has suggested the name "Tendo-Achilles," which anatomists give to the immense tendon which is inserted into the heel (os-calcis), and to which the action of all the muscles of the leg and, indeed, body, as it were, converge, the point of insertion supplying the fulcrum for the most powerful and advantageous leverage.

"THE PERI." MARBLE STATUE. BY J. S. WESTMACOTT. IN THE INTERNATIONAL EXHIBITION.

THE most beautiful and deservedly-popular tale in Moore's "Lalla Rookh" is, without doubt, that of "Paradise and the Peri." The charming creation of Eastern romance and mythology, the aerial Peri of this tale, has often been represented by artists, but never, we think, so successfully as in the statue we have engraved—by the cousin, we believe, of the Royal Academician sculptor Mr. Richard Westmacott. The face and figure are of an unearthly type and character of loveliness, but the idealisation is not of that meaningless kind to remove it from our sympathy. On the contrary, the expression of the bowed head and wringing hands is very touching; and we can almost fancy we hear the sigh escaping from the exquisitely-chiselled "disparted" lips. The figure is the exact mean; it is neither, on the one hand, too grandiose, nor, on the other, too attenuated for the conception; and it is equally far removed from mere sensuous redundancy. The execution is as delicate as the feeling is refined. The features—the mouth especially—are admirably modelled, and the wings are skilfully cut and treated. The only objection we should make is that the drapery of the raised leg advances too much, by which the markings of the kneejoint and patella are lost, and the leg made apparently too short.

"THE WOUNDED ACHILLES," A PLASTER STATUE, BY CARL CAUER.

"THE PERI," A MARBLE STATUE, BY J. S. WESTMACOTT.

The passage the statue is intended to illustrate is the beautful opening lines of the poem:—

One morn a Peri at the gate
Of Eden stood, disconsolate;
And as she listen'd to the springs
Of life within, like music flowing,
And caught the light upon her wings
Through the half-open portal glowing,
She wept to think her recreant race
Should e'er have lost that glorious place.

We need scarcely remind the reader of the sequel. The "glorious angel keeping the gates of light" pities the Peri, and tells her that

'Tis written in the book of fate
The Peri yet may be forgiven
Who brings to this eternal gate
The gift that is most dear to Heaven.

The Peri returns to the gate, first, with the last drop of a patriot's life-blood, and then with the farewell dying sigh of a maiden who preferred to share death by the plague with her stricken lover; but neither of these gain admission. The gates of Paradise are, however, at once thrown open to her when she presents a tear shed by an old hardened sinner softened into repentance at sight of a child praying.

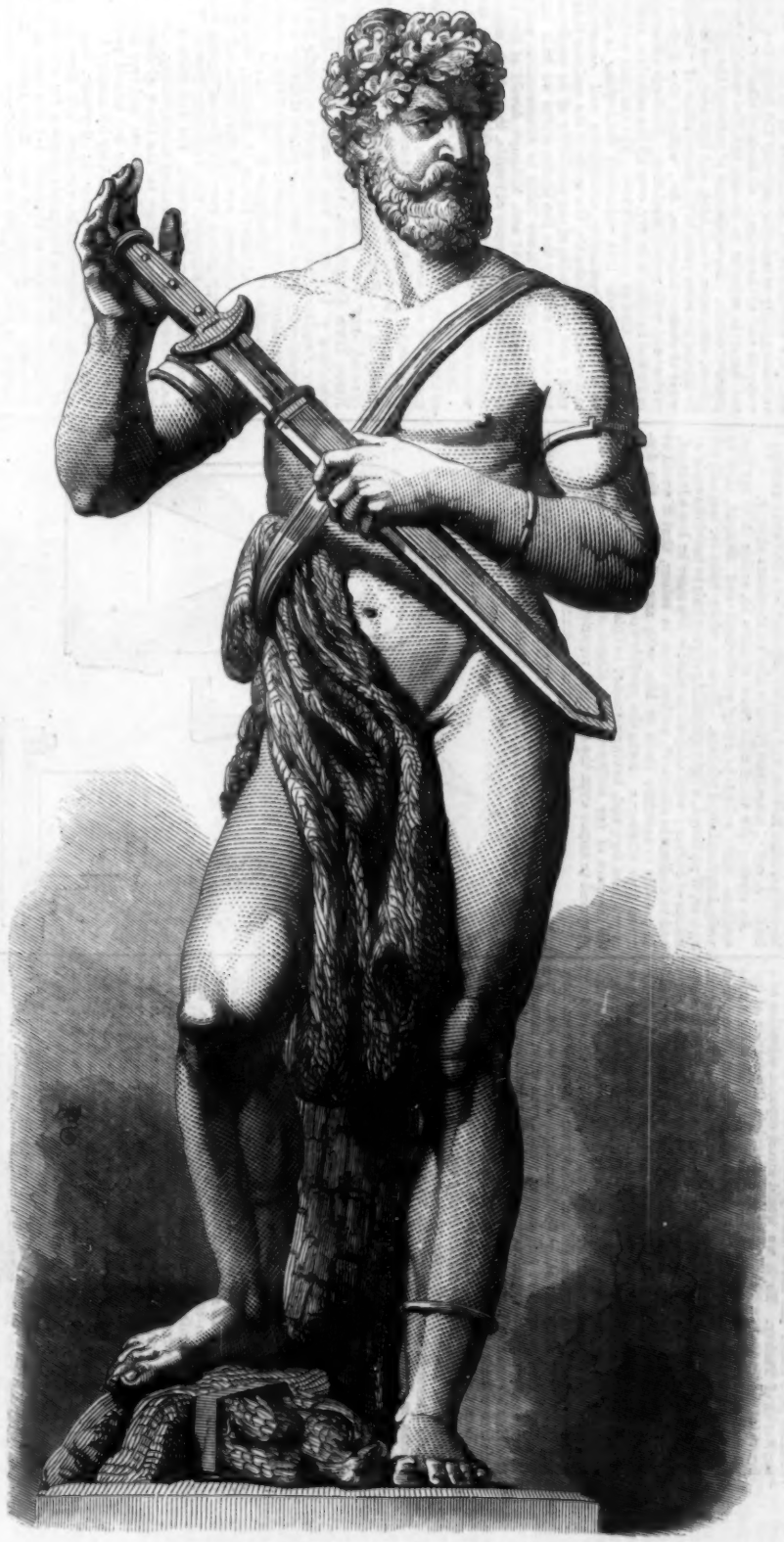


FIGURE IN VULCANISED INDIARUBBER, BY C. H. MEYER.

"THE WHISPER," BY J. SANT.

"A GIRL WITH A FLITCHER," BY T. GAINSBOROUGH.

THE INTERNATIONAL EXHIBITION.

"THE WHISPER," PAINTED BY J. SANT.

IN THE INTERNATIONAL EXHIBITION.

Sir Joshua Reynolds, like most other old bachelors, was extremely fond of children, and his representations of them are among the greatest triumphs of modern art. This great painter delighted to have them playing in his studio to study their "peachlike" complexions, to watch their play, and borrow suggestions from the artless and unstraight graces of their attitudes. Children are at once the glory and despair of the artist. The subtle and unexplorable delicacies of form and colour in children, and their incessant restlessness, render them the most difficult of all subjects. Where is the painter who can perfectly convey on canvas the exuberant animal spirits of early childhood: the blooming cheek, the liquid, dashing eye, the pulpy lip: the fun, and frolic, and mischievous pranks of boys: the kittenish playfulness, the insipient coquetry, the waywardness and archness of girls? If he does so only approximately he has mastered some of the greatest difficulties of his art, and is entitled to much honour.

The popular painter whose pleasing picture we have engraved has undoubtedly imitated, either consciously or unconsciously, Sir Joshua Reynolds in the pictures of child-life which he has made his more particular specialty. Whether, like Sir Joshua, Mr. Sant is also a "bachelor," we cannot say, but we can certify that he is not "old." The fact that the living painter is a follower of the deceased master is evident both in the subjects chosen and in the style of execution; while the appreciation in which the works of Mr. Sant are held is a proof of his having been so with considerable success. The picture the subject of our Engraving attests the eye in the International Gallery by the force and depth of its effect and the richness of its colour. The head-tints, or, as artists term them, the "carnations;" the deep red mantle; the diverse hues, or, as they are popularly called, "shades," of brown hair; the vine-leaves; the sombre, pleasing combination of colour. The handling, as is usual in the works of this painter, is broad and free. The attitudes and expressions of the little maidens are very natural, and, with the title, suggestive; but as those—we trust we may be permitted to say—have been faithfully preserved by our draughtsman and engraver, we will leave the reader to speculate upon whom these pretty little ladies have apparently caught sight of or expect, and the nature of the seemingly misdemeanours and naughty confidences "whispered" in what is, probably, their place of concealment.

"A GIRL WITH A FLITCHER," PAINTED BY T. GAINSBOROUGH. IN THE INTERNATIONAL EXHIBITION.

This delightful picture stands almost as much alone for its wonderful luminousness, richness, and power of colour and effect as the painter's famous "Blue Boy." The modelling, also, is equally solid; the colouring given to the girl's cheeks being very remarkable, while the drawing is certainly superior. This

picture compels so much instinctive admiration that we hardly turn aside, as it were, to think of the technical mastery displayed in the qualities we have named, and especially in the less palpable form of drawing and composition. We see that the attitude is right, the figure perfectly natural; but we do not reflect upon the consummate skill required to express balanced movement on the bare feet so perfectly, to render that turn of the head without the least constraint, to indicate the weight sustained by the pendent arm, to give illusion to the foreshortening of the other arm. We see the wind catching the narrow petticoat, the line thus formed contrasted by that of the edge of the foreground plane beyond, the trees and cottage on the left sustaining the figure on the side most needing support, and a tall tree in the distance on the right bowed by the wind and contributing to the same effect on the other side; and we see the curves of the girl's head and the lower centre of interest—the dog's head—repeated in the cloud forms above. We see these things, but only when we look expressly for them, so perfectly is the art concealed, so simple the means of expression employed. The only fault that can possibly be hinted in respect to the painting is that the glazings are too deep and rich for the grey of outdoor effect.

It is not, however, for its mere technical merits that this picture is so extraordinary. Although these merits may be easily overlooked in such a subject so felicitously treated, it is yet almost a contradiction of terms to assert that they can be absent from any work which makes a lasting impression on the artistic eye and cultivated mind. But it is for its truly astonishing and ineffable naturalness that the picture is so exceptional in its effect on the mind. At the first glance we cannot help sympathising with the poor little rustic maiden, despite her rags, her scanty dress, her unkempt hair. The ingenuousness, sweetness, dutifulness, the humbleness, the contentment, the lovingness of the little girl steal into our heart the longer we look. As we watch her, we see how intent she is on her mission with the poor, broken family pitcher to the neighbouring well, yet how she looks half back in the direction of home with something like pensive longing, and how all the while she must carry in her caressing arm her own little pet puppy. Can we wonder how the poor child probably came to break her pitcher? If, indeed, we give the picture much time the painter's magic throws a deeper spell over us, and we find its intense interest deepen into pathos as we think of the lowliness of humanity—of the millions of poor souls whose errand in life is no higher than this poor child's; the "hewers of wood and drawers of water" who toil with love and contentment to the appointed harvest, and wage till "the silver chord be loosed, or the golden bowl be broken, or the pitcher be broken at the fountain;" till they lie down and are forgotten like the wild flowers of departed seasons, which they so much resemble.

In such pictures of English rusticity as these Gainsborough showed something of the same independence of feeling and originality of subject and treatment, something of the same scorn of pseudo-classical and academic constraint which Hogarth manifested in his immortal pictures of English life and manners. We owe these perfect transcripts of rustic life to the genial, unsophisticated nature and English landscape-loving nature of Gainsborough. Although no painter has surpassed Sir Joshua Reynolds in the representation of childish beauty and character, he never gives us the real rough and ready rusticity of Gainsborough's cottage children. It has been said, though it would appear scarcely credible, that the original of this picture, as well as that of the "Girl Feeding Pigs" (73), was not a cottage girl, but a child of high rank. If it was so the painter has perfectly concealed all artificiality, self-conciousness, or assumption of character; but it was more likely a peasant child of the neighbourhood of Bath or his native Sudbury.

Taste in art was so much a matter of fashion in the latter half of the last century that Gainsborough could find no purchasers for pictures of this kind or for his charming landscapes, and they lined the hall and corridor communicating with his studio at Schomburg House, Pall-mall. It is much to the honour of Gainsborough's great rival, Reynolds, that, although opposed to his theories of what should be the highest end and aim of art, he frankly confessed his admiration for these works, justifying his appreciation by saying, in effect, that it seemed to him that a picture which perfectly achieved what it attempted, though lower in kind, is far more precious than a picture in the highest walk of art which could but suggest its own shortcoming. The "Girl Feeding Pigs" Reynolds bought out of the exhibition for 100 guineas, although Gainsborough asked only 60 guineas. It is a healthy sign of our own time that, with all our artificialities of taste and conventionalites of caste, the Cottage Girls of Gainsborough win hearty and universal admiration.

This picture is now in the possession of J. F. Bassett, Esq., who derived it from the late Baroness Bassett. There is another "Cottage Girl, with Dog and Pitcher," possessed by Lord De Dunstanville. Hazlitt styles this picture a general favourite. "The little dog," he says, "is certainly admirable; his hair looks as if it had been just washed and combed.

The works of improvement in the Bois de Vincennes and on the heights of St. Mandé, Paris (says *Galignani*), are rapidly advancing. Besides the boulevards running straight from the wood to the fortifications, a winding macadamised road has been made from the old demi-lune of the old Capitaineri to meet the high road. On the right a large lake is now being dug, which is to have shady islands in the middle; on the left are a restaurant, a residence for the surveillants, and the old brewery of St. Mandé, now being converted into a barrack for the guardians of the wood. In the cellars of this last-named establishment, formerly stone quarries, there is a geological curiosity, consisting of a petrified tree, embedded in a rock forming the ceiling.

Mrs. Lovell, the last link but one of a generation of which Southey, Coleridge, Cottle, and others of literary eminence formed part, died, at the advanced age of ninety-one, on Sunday week, at Lairthwaite Cottage, Keswick, the residence of Miss Kate Southey, the daughter of the late poet-laureate. Robert Lovell, Southey, and Coleridge married three sisters named Fricker, of whom the deceased lady was the eldest. In 1794 a small volume of poems, the joint production of Lovell and Southey, was issued. Mrs. Lovell was one of the parties to be included in the American emigration scheme of the philosophic bards, which they dignified by the name of "Pantisocracy." Southey, writing in the above-named year to his brother, a naval subaltern, says:—"In March we depart for America—Lovell, his wife, brother, and two of his sisters, all the Frickers; my mother, Miss Peggy, and brothers; Heath, apothecary, &c.; G. Burnett, S. T. Coleridge, Robert Allen, and Robert Southey." The enthusiasm of the poets gave way before practical difficulties, their ideas of emigration, fortunately for themselves, being incapable of realisation. Lovell died in 1796, his venerable widow surviving him for the long period of sixty-six years, finding a home in the household of the kindhearted Southey during his lifetime, and subsequently passing the remainder of her days in the society of his daughter. On Thursday week she was buried in Crosthwaite Churchyard, her grave being next to that of the poet and her sister. The Revs. Cuthbert Southey and Derwent Coleridge (Prebend of St. Paul's), both natives of Keswick, and the only surviving sons of the two distinguished Lake poets, attended the funeral.

SCIENCE AND ART DEPARTMENT.—The annual report just issued by the Science and Art Department of the Committee of Council on Education, states that in science schools or classes there are now 3147 persons under instruction, of whom 2278 are in schools under certificated teachers, and consequently receiving aid in the form of payments on results; 76,893 pupils in parochial and public schools, and 15,494 in central schools, in connection with this department, received instructions in art in 1861; and 91,836 persons were taught drawing in the schools of art. The South Kensington Museum was visited by more than 600,000 persons in the year; 8884 photographs, unmounted, were sold; the amount received being £715. Mr. Redgrave reports that the pictures in oil are being by degrees secured from injury by glass, and most of those more particularly susceptible of injury from their delicate execution, and which are on a level with the spectator, have been already so guarded. Ventilation and the regulation of the heat have been carefully attended to, and every precaution used to preserve these valuable works from deterioration. The collections, as a whole, are under the best conditions for insuring their perfect preservation, and in the instance of the few works in which change is to be apprehended its progress has been arrested by the precautions adopted. Mr. Sheepshanks has added to his munificent gifts a picture in oil by Mr. Mulready, "Mother and Child," painted expressly to add to the series of that artist's works. Under the head of institutions subject to the superintendence of this department, Sir R. Murchison reports the progress of the geological survey: 1430 square miles in Great Britain were surveyed in the year. The Government of the King of Italy have resolved to commence a geological survey of that kingdom, and to carry it on upon the plan adopted here; and M. Sella, of Turin, has in a recent visit to London been supplied with all the necessary information for the development of this scheme. The Botanical Gardens of the Royal Dublin Society have been opened on Sunday since Aug. 18, 1861, and on the remaining Sundays of that year they were visited by no less than 80,655 persons, upwards of 15,000 being present on one occasion. The visitors were chiefly of the humbler classes. Not a flower appears to have been plucked, nor a plant injured, with the exception of some potted plants thrown down in the conservatories in consequence of the narrowness of the passages.

EDUCATIONAL WORKS AND APPLIANCES IN THE INTERNATIONAL EXHIBITION.

EDUCATION has at all times in civilised countries been considered a matter of deep importance, and justly; for, as the products of the soil are the physical riches of a State, the knowledge and enlightenment of its inhabitants constitute its moral and intellectual wealth. In former days, when war was a more general occupation than, fortunately, it is now, the exercise of the body in martial accomplishments was almost the only training given to the young; and the highest in the land was less educated, intellectually, than the humblest peasant or mechanic among ourselves. And when education began to be held in esteem it was almost confined to the clerical order; so that it was presumed in law that all who were able to read must belong to the ecclesiastical body, and hence any one qualified in that very moderate way was entitled to the "benefit of clergy"—that is, to the privileges which were allowed to clergymen in those times. As to the poorer classes, their enlightenment was looked upon as little to be desired, since learning could add nothing to their capability of performing their laborious duties, and it might render them dissatisfied with their condition. Latterly, however, the education of the lower orders has been considered a matter of paramount importance. Not only have schools been provided in which the poorest may receive instruction, but every effort has been made to render that instruction as perfect as possible. And the most exalted intellects, as well as the most dignified personages, have considered it one of their imperative duties to superintend and watch over the education of even the most destitute. Still more recently, Governments have taken upon themselves the responsibility of providing instruction for those who from their circumstances could scarcely otherwise obtain it. And every encouragement has been given for the discovery of the best methods of teaching, and for the best mechanical aids in the communication of knowledge.

We were not the first to catch this enlightened spirit or to carry such philanthropic views into effect; but we have come up with and even passed in the race those who started before us in this benevolent career. We have not only availed ourselves of the experience of other countries, but we have made valuable additions to the general stock of information on this interesting subject; and we have expended vast sums on popular instructions—the very best purpose to which they could possibly be devoted. The experiment of a national system was first tried in Ireland, where the population was most deeply steeped in ignorance; and, though it has done much good there, it has not ameliorated the condition of the country as much as might fairly have been expected. Here the introduction of a similar system has been attended with far more beneficial results.

It was most judiciously intended by the committee to whom the educational department of the present exhibition was intrusted that the contributions to it sent by the various countries should be in juxtaposition; they would then be seen and compared with great facility. But the foreign commissioners were desirous of keeping each educational collection separate; and, though this was unfortunate, it can scarcely cause us any surprise, when we perceive that some countries exhibit very little connected with education, and others nothing whatever.

The British Educational Collection has been placed in the most inconvenient and remote locality of the whole building, and has been jumbled up with photography and its requisites; nor is it likely to be visited except by those who feel a special interest in what it contains. Considering its importance, it is not very extensive; but this is not the fault of the contributors, since *fifteen* times as much space was demanded by them as could be granted. It was necessary, therefore, to make a selection; but there is quite enough to show the present state of education, as far as its matériel is concerned. The books exhibited are numerous and well chosen; all the eminent publishers have sent their most approved educational works, and every one who pleases has an opportunity of examining them. The various well-known educational institutions show what they have done in providing books and requisites of a useful and convenient description. There are books for the blind, and untearable books for children, excellent maps, and a projection of the two hemispheres, representing the globular form of the earth in such a way as to prevent or remove the usual crude ideas of young persons on the point. Of the many good globes which are exhibited that of Macintosh, made of india-rubber, seems to be the most convenient; when not inflated it occupies very little space.

The National School Society shows some excellent models of school furniture, and among them telescope desks, which are very simple and can be made to occupy very little room. The Home and Colonial School Society exhibits admirable specimens of school fittings, and models of gymnastic requisites. The different peculiar forms of instruction are fully illustrated: thus, the mode of teaching the blind, and particularly by the phonetic system; the management of infant schools, &c. Not the least interesting object in this department is a model showing the benefits derived from reformatory and ragged schools. The rescue of the young from vice and crime, and their career of training until they join some useful trade or calling, are very effectively represented. By a strange oversight it has not been attempted to confine the toys and games exhibited in this class to those relating to educational purposes; and hence most of what are shown here are entirely out of place. Toys are, however, a necessity for the young; and they may very often be turned into a pleasing and effective means of imparting instruction. When destined for this purpose they are strictly appliances of education; otherwise they have no connection with it. There are numerous small collections of a very useful kind: thus the Home and Colonial School Society shows a number of common objects, with many of which children are familiar only by name; also objects illustrating the manufactures of Great Britain. There are chemical apparatus and chemicals for the simpler kinds of elementary instruction in such matters; collections of minerals, some of them having particular reference to the teaching of geology; fossils and shells; zoological series and anatomical specimens; mechanical and other diagrams; models illustrative of the elements of physical science; in a word, between private exhibitors and public bodies, nearly everything is shown that is required for a sound and practical elementary education.

The Austrian educational collection is in the north-west transept. The Austrian Government prides itself on having directed education, in a special manner, to practical purposes. It alone has the power of appointing and dismissing the teachers, who, not including those for religious instruction, amount to forty thousand. But it provides for their widows and orphans—a generous, or rather a just recognition of the claims of those to whom society owes so much, and whose lives, if they perform their arduous duties with zeal and fidelity, are almost certainly shortened by their exertions in the public service. Austria is well provided with schools of every kind and for every class; even the governesses who instruct the children of the higher orders are trained in establishments instituted for the purpose; and thus the children of the wealthy are provided with at least as good teachers as those of the poor—which is not always the case with us. Among the requisites for teaching shown by Austria we observe means of instruction in shorthand, a branch not often considered as belonging to ordinary education. We find maps printed, not on paper, but on woven fabrics, and hence more convenient and durable than the ordinary kind; also aids in the way of rendering formal lessons unnecessary; pictures and other objects for the instructive occupation of youth; models of schools, &c. We are not surprised at perceiving a variety of mechanical and other toys, since many portions of the Austrian empire carry on a large trade in them. Thus, the Gröden Valley, in the Tyrol, exports annually three hundred tons of wooden toys, that reach every quarter of the globe. The models and apparatus connected with *realistic* schools, or those affording, in addition to ordinary instruction, facilities for acquiring special branches of knowledge relating to manufacturing and trading pursuits, are very interesting. Philosophical apparatus used in the higher grades of instruction is also shown, and illustrations to anatomy and comparative anatomy.

Belgium has filled two small compartments in the north-western gallery with objects belonging to this class. In one of them, devoted to the school of industry, besides ordinary apparatus, such as books, models of school-desks, &c., we find a collection of substances used for domestic purposes; historical and mechanical diagrams; designs for shawls, &c., some of them extremely beautiful; and specimens of the work done by the pupils. In the other, which constitutes a Belgian school museum, are diagrams and other illustrations of natural history; collections of minerals and philosophical instruments; specimens of the works of the blind, and of deaf mutes, &c.

France has arranged her educational contributions in a very pleasing and convenient way, in two compartments of the south-west gallery; but, though they are very attractive, they rather disappoint us, when we recollect how extensive and how perfect a system of education has been organised in the French empire. The first compartment is devoted to the means and appliances for instruction; the second, to the results obtained from them in the shape of works executed by the pupils. In the former, besides an excellent collection of books connected with pedagogy, globes, maps, &c., is an orrery placed within a sphere of glass, having the fixed stars depicted upon it. There are also models of solids, and curves, photographic copies from antique busts, anatomical and mechanical diagrams, natural history and botanical collections, &c. In the compartment which contains the works of the pupils, a painting on porcelain, by a young workman only eighteen years old, deserves particular notice; and some beautiful specimens of flower-painting, sent by the School of Design of the City of Paris. The works executed by the blind, and by deaf mutes, should also be examined. In the centre of this division is placed the model of a gymnasium for females, the various evolutions performed, and the contrivances used, being very clearly shown by miniature apparatus and figures.

The educational collection of Italy, in the south-central gallery, is very confusedly mixed up with other matters—with anatomical models and preparations, for example. It is very limited in extent, but the beneficial results of a free and rational Government have not had time fully to develop themselves. It includes some good diagrams, models of crystals and solids, a collection of chemical substances, a small museum of economic botany, containing the various agricultural products of the country, mineralogical and natural history specimens, &c.

Prussia has long been distinguished for her exertions in the cause of education. Among the educational apparatus which she exhibits at the south-west corner of the western transept are some good maps and globes, both plain and in relief; apparatus for teaching the rudiments of geometry by superposition of the surfaces, or parts of surfaces, which are to be proved equal; some very excellent elementary collections of minerals, &c.

The educational contributions of Russia, in the north-west gallery, is scarcely worth a visit. Its most prominent objects are models of animals and fruits, and representations of the different varieties of the human race. Switzerland has done little to show the progress which she has really made in education. Her contribution in the north-west gallery is nearly confined to a few neat mechanical diagrams, collections of common substances, objects relating to natural history, and herbariums.

We have now directed the reader's attention to the chief points of interest connected with the educational department. Among the countries which exhibit nothing connected with the subject are Spain, Portugal, and Rome: and how suggestive is this fact! Those very places which are most in want of education for the humbler classes are the least concerned about it. But, wherever a religion whose greatest foe is enlightenment possesses uncontrolled sway over everything in the shape of education, even the progress of modern times, great and rapid as it is, can scarcely succeed in introducing that "knowledge" which, being "power," would soon become too strong for superstition and despotism, its most determined opponents.

GLASS FOR HOUSEHOLD PURPOSES IN THE INTERNATIONAL EXHIBITION.

WHILE it must be admitted that in order to our healthy advancement in some manufactures, with the success of which a knowledge of decorative art is intimately associated, we have found it desirable to import from other nations men more skilled in ornamentation than ourselves, it is yet true that in one art-manufacture at least we have achieved without any such assistance that excellence which places us in advance of all other competitors for similar success.

In the glass manufacture we are in this happy position, for we have acquired the true method of working the substance into shapes which are alike beautiful and consistent with its character. It is not sufficient to discover a mode of forming it into articles of utility, or even of shaping it into objects which are both beautiful and useful, if they do not result from a just mode of working it, for in order to satisfaction (in the absence of which there cannot be beauty) there must be a frank acknowledgment of the nature of the material, and the aspect of the article fabricated must ever point to its character and properties as well as its mode of production.

It is apparent, then, that a specialty of character must mark the works of each branch of manufacture, or, in other words, that the articles of each manufacture should possess an amount of individuality; thus, glass vessels which are best formed from a bubble of the metal, the production of which is rendered possible by the ductility of the material, should differ in character from articles of earthenware, as these are formed in a different manner; and as clay differs in properties from glass, and works both of clay and of glass should differ from those of iron in view of the difference in the character of the material, and the necessary dissimilarity of the modes of production; and even articles formed of the same material and wrought in dissimilar ways should differ sufficiently to indicate the particular modes of their formation; so articles of cast and wrought iron should have individual qualities.

In order to judge rightly of the merits of art-works it is necessary to acquire a knowledge of the mode of their production; and in the case of glass ware such knowledge is peculiarly advantageous, as it would be difficult correctly to estimate the value of certain qualities were the *modus operandi* unknown.

It will be remembered that all hollow glass vessels, however dilated, result from a mass of the "metal" being inflated while in a plastic condition, and thus formed into a bubble, which is modified in shape or opened and expanded till it assumes the flattened form of a saucer, as may be required. If, while the bubble is being blown, it is directed downwards, it acquires an elongated form; if it is directed horizontally, and a rotary motion is imparted to it during its formation, it is spherical in shape; and, by varying the direction of the pipe on which it is blown while it is in process of formation, the form of the bulb may be materially modified. It may be further modified by being rolled while in a semi-plastic condition upon a slate slab, for by such a treatment the curved sides may be straightened and the base flattened in any manner that may be desired.

With these considerations in view, we are prepared to contemplate the glass objects of the exhibition, a most cursory glance at which will suffice to render apparent the pleasing fact that those exhibited in the British portion are superior in every respect to those of every other department.

Austria and France, but more particularly the former, have furnished the chief portion of the foreign glass brought into the international contest; and in the articles exhibited by both countries, especially by Bohemia, massiveness, which tends towards heaviness, is very apparent; and in some works all beauty of form is sacrificed to a more florid, and, in too many cases, most undesirable effect.

This inferiority of the foreign glass arises from the want of a knowledge of the true nature of things which must be perfectly understood before any objects of a decorative character can be rightly produced, and from the not adopting a correct mode of working the material of which the articles are wrought. One of the greatest sources of comparative failure in the foreign works arises from the want of a true regard to construction as distinct from enrichment, and the rightly discriminating between these, which are essentially distinct. The difference between the construction and enrichment will appear upon meditation, for the one concerns itself with the creation, or formation only, of an article, and the other with the enrichment of the object produced, or the applying to that which has already been formed qualities which shall render it richer and more beautiful. No sooner is a large, attenuated bubble of glass made with a flattened base than a decanter may be said to be produced; but, while it is created or shaped, it is not yet enriched or ornamented, for this must result from the applying to that which has been already made decorative shapes, by engraving its surface, adding to it colour, or in any way producing upon it that which is in a sense useless, as it is superadded to utility, and is intended to serve merely

as a means of affording pleasure to those who contemplate the object thus treated.

An observation of the Bohemian glass in the north-west transept of the exhibition will show how the distinctions which we have just pointed out have been overlooked in its production; for, after the article is formed, its shape is in many instances interfered with, and even totally altered through the original form being destroyed by cutting. Yet this alteration in the form of the object, or this treatment of the surface, does not constitute its ornamentation, as further enrichment is applied by enamelling and gold; hence the confusion of ideas, inasmuch as things which are essentially different are blended; for while we say that the cutting is not the decoration of the constructed work, as enrichment is further added, it is also not a structural quality, as it in no way concerns itself with the utility of the object, or is a necessity of its existence.

Besides, the want of a due acknowledgment of structure as distinct from decoration in the foreign glass, there is also a want of a correct method of working the material of which the objects are made.

If a tazza were to be formed out of a block of stone, it would be necessary that the cup be shaped by a process of cutting, or by wearing away the greater portion of the mass by grinding; but were such an object to be formed of glass, a mode of formation of a very different character would be adopted, owing to the ductility and fusibility of the materials, and while in the former case the production of the object by a process of cutting is consistent, as it is the only means by which the article can be worked, such a mode of formation becomes absurd if the material be glass, as by the mere formation and opening out of a bubble the cup may be produced. As a simple and ready mode of formation is possible in the one case, it would be absurd to replace it by the more difficult mode of production. Thus the absurdity of producing the tazza by cutting a large block of glass into shape in the manner in which the work in stone would be made is apparent.

But the whole question hinges upon this fact—that the absence from a work of all appearance of labour tends to exalt it in the estimation of the beholder, and the presence of that which manifests toil in its production militates against that feeling of satisfaction which an object must awaken in order to its being regarded as beautiful.

The rightly-constituted mind derives no pleasure from the fact that he has servants labouring to administer to his gratification or exalt his pleasures, but rather mourns that such is necessarily the case in view of the state of society. He would rather wish his servants' pleasures similar to his own, and that he could do without their labouring for his sake; but, as this cannot be, he views the fact in another light, knowing that good service yields satisfaction to the employed; and this view of the matter it is which saves him much pain. It was well that the consumer of the earlier lucifer-matches should be ignorant of the painful disease which those who worked at their production were inevitably doomed to endure, or how could they be used? How can I derive gratification from another man's pain or toil?

While the absence of labour is necessary in order that a work be satisfying, the presence of that which manifests the operation of mind is both welcome and pleasing. The mental faculty elevates man above the mere beast and constitutes him a superior being. It is this which renders man, while yet an animal, still more than the animal, and gives to him an exalted existence; hence that which springs from the mind has the exalted nature of that from which it has sprung, and commends itself to the affections of those with whose nature it may be said to be endowed; while that which fails to set forth the operation of mind has no claim to mental origin, having no qualities whereby it may be distinguished from the result of mere animal or mechanical labour.

The bearing of these considerations upon our subject is obvious. Much of the foreign glass fails to impress us with a feeling of satisfaction when we behold it, for it conveys to the mind a sense of laborious construction, and bears upon it but small trace of an elevated origin, the forms being coarse and vulgar, and, in some cases, appearing as accidental. If a simple mode of working a material is possible, why adopt a method which is tedious and lengthy? If beautiful shapes can result from a substance by the operation of an amount of skill and labour which can be accomplished in a few seconds, why spend weeks in achieving a similar result? Yet much of the Bohemian glass owes its present form to an amount of grinding and cutting which has involved the expenditure of much labour. Owing to the very constitution of our nature, certain articles of foreign glass must suffer condemnation and yield priority to the British manufacture; and this it does in view of the mental qualities and absence of a sense of laborious construction of the one, and the manifestation of labour and want of exalted qualities in the other. Yet all the foreign works must not be condemned, nor all the British works commended, for there is the excellent and the inferior in both divisions of the exhibition; but a preponderance of good is on our side in this instance.

The British glass is marked by great purity and beauty of form, which results from the adoption of the most simple mode of working the material, and manifests great refinement of mind. But some manufacturers are more sucessful in their results than others. The great majority of the bottle forms (decanters, claret-jugs, &c,) by Pellatt and Co., Sharpus and Cullum, J. Millar and Co., Dobson and Pearce, and W. P. and G. Phillips, are worthy of high commendation, while some are so beautiful in shape as to be considered as wellnigh perfect; and many by Copeland, Powell, Storey and Son, M. L. Brown, J. Green, Lloyd, and Summerfield are worthy of equal commendation, and there is not a stall on the British side which does not present some shapes which, while extremely simple, are so beautiful as to be worthy of the most careful consideration. The bulb form appears in all its modifications, and in some cases becomes peculiarly conspicuous, being altogether without enrichment. Pellatt has many works of this character which may be attentively observed with much advantage; yet the fullness of the variation which may be wrought upon the one primary form, the bulb, must be learned from the more comprehensive observation of the entire collection of works exhibited by the British. In some cases the bulb is spherical, is flattened beneath, and is prolonged upwards into a neck; in other cases a similar form is elevated by a foot; the bulb is also compressed laterally, depressed or flattened from above, or attenuated into the flask-form, and this shape has its sides straightened obliquely or vertically, or accented in the manner of a spindle (*fusis*), and in many ways is the shape modified without the least sacrifice of beauty.

A few years are sufficient for great changes to take place, a fact which is very pleasing when the change tends to progress; not many years back a vessel was valued in ratio to the extent to which its original form was modified, and its original surface destroyed by cutting, whilst the more simple shape was discarded, being deemed unworthy of notice; and even at the present moment this debased taste has not totally yielded to more exalted views. Still our recent progress has been rapid, and we can now value a mere form and enjoy the sight of an object which is beautiful in shape, be it unenriched by adornments. There *is* beauty of form, and one great proof of our advancement is found in the relish which we have for simple, unpretending, yet meritorious shapes. A claret-jug or decanter, which is but a plain bubble of glass of graceful contour, has now a higher commercial value than the more elaborate cut article, and will even sell when the latter will not, a fact which speaks loudly of progress as well as change.

Besides the bottle form the cup is well represented, both as modified into the tazza on the one side and the wine-glass on the other. The majority of the manufacturers which we have named have vessels of this class, varying in shape from the cylinder to the semicircle, and from the semicircle to the campanula in its most spread variety, and in one or two examples of a Flemish type, shown by Powell, the margin is scolloped and waved. Other quaint forms are also shown, especially by W. P. and G. Phillips, who also have glass of a Flemish type; as a rule, the shapes are, however, Greek, and have resulted from a study of those works of the classic period which long have furnished, and ever will continue to furnish, examples of beautiful shape such as the most refined mind may delight in contemplating.

On two nights last week there were such immense shoals of herrings off the north-east coast, that the number brought into Whitby Harbour on the two following mornings amounted at a low computation to nearly 3,000,000, realising above £3000.

FOREIGN CARPETS IN THE INTERNATIONAL EXHIBITION.

WE have recently called attention to the British carpets in the International Exhibition, and have expressed our opinion upon them with an amount of freeness which would scarcely be warrantable were not our object the endeavour to administer to national advancement; but, when we state that this is what we ever have in view, and is that to which the pleasing of our readers is secondary, we feel that even the manufacturer in whose works some little mistakes have occurred will accept our assurance of kindly intention and receive our remarks in the spirit in which they are written.

While candid criticism of the works of the manufacturer may tend to induce him to throw into the market as few works as possible in a debased style of art, it is obvious that in order to the suppression of works of bad taste we must have the sympathy of the people with our remarks and their assistance in bringing about the desired end; for, so long as the public persist in purchasing inferior and even debased works, the manufacturer cannot suffer much blame for administering to the taste of his consumer, especially as it is a rule in society that the one who is benefiting the other, as the consumer is the manufacturer, should at least have his desires gratified. The evil of producing bad works is not, then, to be laid entirely to the charge of the manufacturer, but to that of the consumer also; and, in order to the suppression of such, the use of inferior works must cease, which will at once check the supply. But, in order to this, it is necessary that every individual possess that knowledge of ornamental art which will suffice for the discriminating between the meritorious and the inferior, and that a knowledge of the leading principles, at least, which should regulate the application of ornament to surfaces, both vertical and horizontal, to fabric and to objects of domestic service, be possessed. This being the case, we feel that we cannot pass the foreign carpets over without mention, as those from both India and Turkey are, in view of many considerations, worthy of the most attentive study, and may serve as a means of cultivating the judgment and refining the taste. In these days it is peculiarly necessary that we have constantly in view certain examples which embody true principles and which fulfil all requisite conditions, for this is the chief means of artistic education open to a large portion of the adult population of our country; for, while music and French are taught in almost every school, no instruction is afforded in that most important form of art which associates itself with the articles that constantly surround us, and thus too many individuals fulfil the words of the late Professor G. Wilson—"They rise in the morning from ugly beds to attire themselves in ugly dresses, to lave their faces in ugly basins, and make their toilets before ugly looking-glasses. They tread hideous carpets till they reach a parlour filled with absurd furniture, and gather round a breakfast-table where, with the exception of the handsome forms and fair faces of their wives and children, and the graceful outlines of the boiled eggs, which are beyond their power to mar, they see nothing but imperfections, monstrosities, and deformities."

The Indian and Turkish carpets are in some respects widely different from each other, yet they have features in common, and both may be said to be founded upon equally correct principles. Thus, both are rigidly flat in treatment; that is, no attempt at light and shade is made, nor is the evenness of the surface (which is a very desirable quality in a floor) in any way disturbed. The artists who have produced them have formed a correct idea of the nature of their work, and have set about the production of that which shall enhance the aspect of the floor without introducing any objectionable qualities. The decorative shapes employed, and the arrangement adopted, is such as does not give to the patterns a right and wrong way upwards, but emphasises them equally in all directions, which is the only treatment consistent as a floor enrichment. Yet in how many cases does this requirement remain unfulfilled in the carpets which we see in the shop windows, and even on the floors of the opulent; and yet no arrangement in which the pattern runs in one particular direction can be satisfactory, as it must of necessity be wrong way upwards to the greater portion of the occupants of the room, and thus impart pleasure only to the few.* A low neutral aspect also marks these carpets, which is due, primarily, to the nature of the colouring, but also, in part, to the judiciously vague distribution of the shapes used for the purpose of enrichment. In the case of a decoration which is in any way to serve as a background, it is a very wise expediency to impart to it a negative or neutral aspect which, while rich and beautiful, is by its nature unobtrusive and retiring. Those who have not made the trial will be unable to judge correctly of the value of a low-toned background in enhancing the value of the nearer and more important objects: if, for instance, the wall paper be of a showy character and full of strong contrasts of colour, and the carpet be of the same attractive character, the pictures on the wall will pass almost unnoticed and furniture of the highest excellence will yet be unadmired; but if the circumstances be reversed by the wall-paper and the carpet being neutral in effect, the pictures, which were before unattractive, will now be conspicuous, and the furniture will look both beautiful and good; indeed, an air of respectability will now be found to pervade the apartment which was altogether wanting before; and even if the furniture be of an inferior kind, and a few vases of flowers the only ornaments (than which nothing can be better), their richness and beauty when thus seen upon a retiring background is, comparatively, exceedingly great. We are thus led to see that the Indian and Turkish designers are possessed of most valuable knowledge, which has led them to endow all their carpets with this neutral aspect. But the artists of the two countries achieve their results in different ways, for we find in the Turkish carpets large masses of negative colour employed as general and partial grounds, such as low-toned or tertiary red, which is their favourite colour; and forms of a semi-geometrical character filled in with ornament of various hues, in which blue and green predominate; they, however, depend for their effect chiefly upon the exact tone of the colour which is to prevail in the work as the ground-tint, and throughout the colours are used in such masses as to effect the eye separately. The Indian carpets, on the contrary, owe their negative aspect to the precise balance of colour which is introduced into the works, whereby a neutral colour-bloom is produced. It is worthy of the utmost attention that pure and intense colours can be so combined as to produce a negative effect when seen from a distance; that is, red, blue, and yellow, of prismatic intensity, may be arranged side by side in small quantities (not actually mixed together), so that they shall not appear as so many colours, unless minutely inspected, but as a glowing neutral hue, and the highest harmony exists when this effect is produced. If the pigments representing the blue, red, and yellow of the prismatic spectrum be mixed together in the proportions of eight of blue, five of red, and three of yellow, they will neutralise each other and produce a grey black; but if they be co-mingled without being actually mixed, they will produce a grey white, as by a disc with these colours upon it in the proportions named having imparted to it a rotary motion. Pigments, it must be remembered, are not exact representatives of prismatic colours, otherwise the blending of the three colours would produce intense white and not a light grey, and in many respects they differ.

Not only will the three pure or primary colours—blue, fred, and yellow—combine to produce a neutral colour, as a grey-black, if actually mixed; or a grey-white, if merely intermingled, but a similar result will appear if purple, green, and orange are combined, in the proportions of thirteen of purple, eleven of green, and eight of orange; for purple results from the direct combination of blue and red, green from the combination of blue and yellow, and orange from red and yellow. A most pleasing effect will always be found to result from the combining small portions of colour in such a manner as to produce this neutral aspect, and by causing one or two colours slightly to preponderate.

The Indians produce their effects in the manner that we have just described, and impart a glowing effect by letting orange slightly prevail. Yet, while we say that the Indians adopt this mode of producing their neutral effect, and that the Turks use masses of colour which are in themselves low in tone, we only mean that such modes are the more general with these people: yet, in some cases, the Turkish works exhibit a very full admixture of colours, and the Indian rugs have grounds of a single tint.

Excellent examples of the more characteristic carpets and rugs of the Turks are exhibited at the north side of the nave by Messrs. Watson, Bontor, and Co.; Messrs. Thos. Tapling and Co.; and Messrs. Lapworth Brothers; and of the Indian carpets and rugs in the west gallery of the north-east transept by Major M'Andrews, who exhibits a carpet made at Lahore by the Thugs; Messrs. Watson, Bontor, and Co., who show one from Masulipatam, a carpet made by the prisoners in the gaol at Meerut (which closely resembles that shown by Major M'Andrews), and a series of rugs. These, together with a carpet made by the native Thugs at the Government School of Industry at Jubbulpore, are the most important works, and their excellences can scarcely be overrated. No works to which we have alluded should be slightingly considered by the art-student, or by any who desire to cultivate their perception of the beautiful or quicken their power of appreciating that which is exalted and true in its art qualities; for, in some cases at least, and particularly in the two large rugs immediately north of the portraits of the kings which hang over the doors of the refreshment-room, the highest qualities of the most exalted form of decorative art are embodied: they are wellnigh perfect in colour, and in relation to the massing out of primary, secondary, and tertiary forms manifest the rarest and most cultivated skill. And so enjoyable is the sight of these works, and so beneficial to the advancement of a just taste amongst us, that we cannot forbear taking this opportunity of publicly thanking the exhibitors of foreign carpets for affording us such an opportunity of intellectual pleasure. Further peculiarities than have already been named, which help to characterise the carpets of Turkey and India and to enable us to distinguish between them, are—the Indians make frequent use of decided geometrical forms, which the Turks but rarely do; the Indians also outline most of their ornamental shapes with a colour either lighter or darker than that in which they are wrought, which the Turks do not; and Indian ornament very frequently consists of forms derived from plants, and has white introduced into its parts for the purpose of emphasising the distribution or plot of the work, whereas Turkish work is generally ornamented with purely conventional forms, and white is most frequently absent. We might derive valuable lessons from considering the manner in which the Indians derve their ornament from Nature, and show that in some instances the ornamental forms which they produce depart but little from a truly typical or ideal form of the perfect flower as undisturbed by casualties and unmarred by blights; but this is beyond our present purpose; yet even now it is worthy of especial notice that the Indian treatment of flowers is exactly that which receives the highest encomiums from the most profound judges and most experienced teachers of ornament. "Flowers or other natural objects should not be used as ornament, but conventional representations founded upon them, sufficiently suggestive to convey the intended image to the mind without destroying the unity of the object they are employed to decorate." And this mode of treating flowers has universally been obeyed in the best periods of art.

In striking contrast with those carpets to which we have referred is one from Benares, exhibited by Dr. N. H. Cheke. It possesses neither beauty of design nor richness of colouring, and the principles involved in its production are in no way superior. It was made by the Thugs; but so has their native art been debased that of all the encomiums bestowed upon those near it not one is applicable to this. The pattern has been known for many years amongst Kidderminster carpets, but we never had the infliction of seeing it in a worse form than that in which it is now exhibited.

It is a lamentable fact that with all the advantages which England has conferred upon the land of India evil has been largely mingled. Tyranny and oppression too often marked the path of the early rulers; and even in the present day, when we boast so loudly of our mild government and of our beneficent rule, our influence is not wholly good. The carpets furnished by the natives of Hindostan are unrivalled in every respect, but unfortunately their production requires a considerable length of time, the Thugs being ignorant of the modern process of carpet manufacture. To remedy this evil, an attempt has been made to introduce the Kidderminster process amongst the natives, and so far we give all honour to our countrymen; but, either through the grossest ignorance or the most deplorable want of appreciation in those who introduced the modern carpet-weaving into India, the beautiful patterns of the natives have been thrown aside, and some of the worst and most despicable of a wornout English school substituted. Thus it happens that we have one of the most hideous specimens of Kidderminster exhibited side by side with the beautiful productions of the native loom which have fortunately escaped the debasing influence. In the carpets of the natives due regard is paid to the relation of the carpet to the furniture of the room. Thus, as we have just seen, the colouring is low in tone, though rich and full: the consequent effect is, not to call attention to the floor, but, by forming a good background, to display the other articles in the room to the best advantage. The Kidderminster carpet exhibited, on the contrary, by its coarse vulgarity, immediately calls the chief attention to itself. We frequently find, however, that an evil, to an extent, brings its own remedy, the "bane and antidote" placed in close juxtaposition; and so it is in the present instance; though it would at once attract the gaze of any one entering a room in which it was spread, yet so hideous is its appearance that the eye instinctively wanders from it in search of some more pleasing object on which it may rest. The most painful feature connected with the subject is that, though the immense evil connected with this importation of bad taste into India was pointed out and strongly deprecated eleven years since, it is still continued. In the first Great Exhibition some specimens of this Anglo-Indian daubing were displayed, and were condemned in the following words in the "Supplement to the Report of the Jury on Class XXX:"—"Having spoken thus highly of the decoration of such goods (carpets) in India, it is painful to observe the attempts ignorantly made to vitiate the sound taste of the native artists. It has, no doubt, been done by those who are unaware of the true knowledge and just principles evident, more or less, in all Indian manufactures; but it is not the less necessary to be commented on, since a school of industry seems actually in operation at Jubbulpore for teaching the reformed Thugs to make carpets in the worst European style; and at Bangalore the same teaching seems in operation. It is to be hoped that, when the admiration elicited by the display of the Indian fabrics at the Great Exhibition is re-echoed back to the land that produced them, this strange error will at once be remedied." This result, however, though so desirable, and apparently so natural, has not been brought about, for English influence still continues to vitiate the taste and degrade the style of the natives, whom we are disposed to regard as beings of an inferior order.

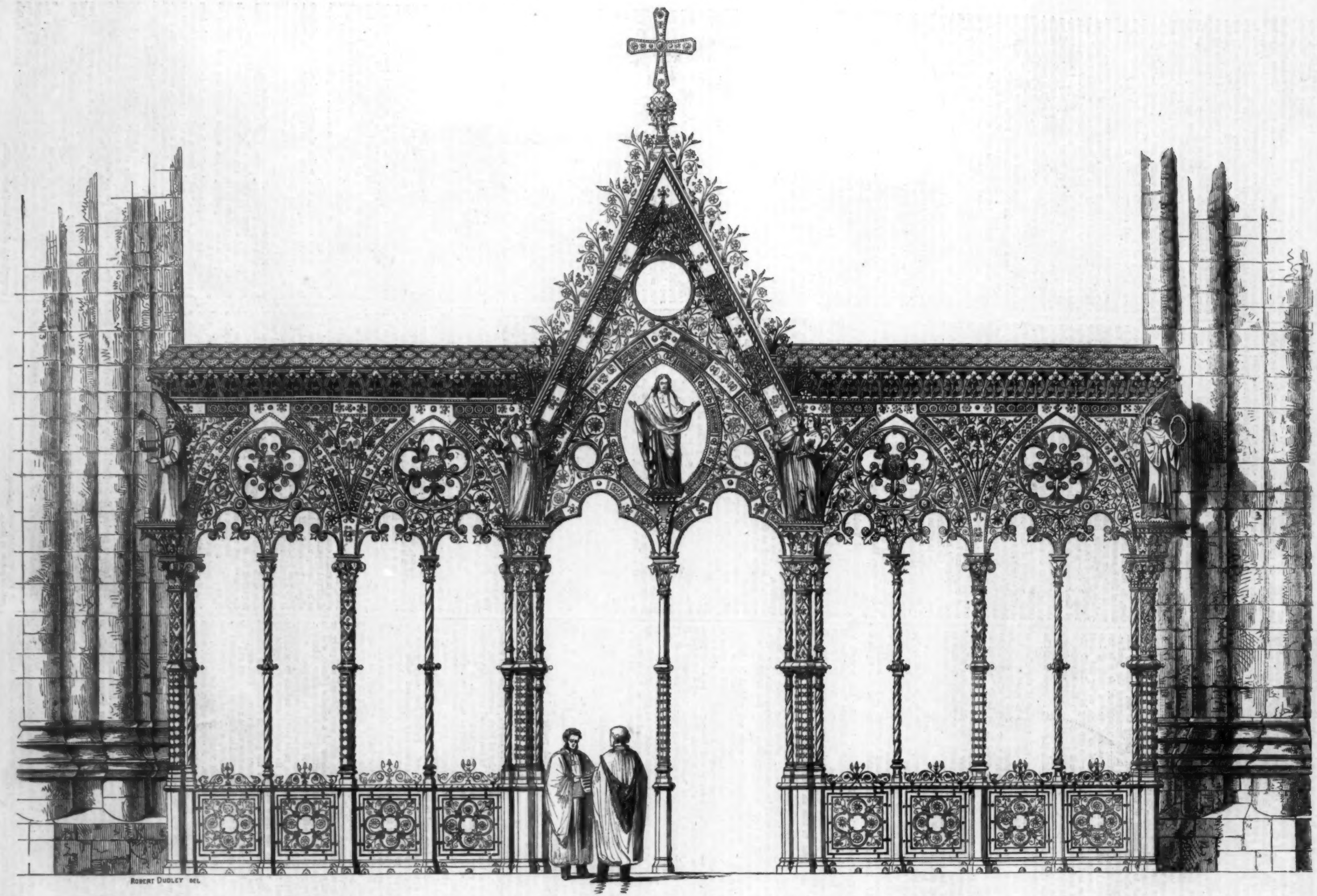
We cannot conclude our notice of carpets without some reference to two works of a character new to us in this portion of the world—namely, those from the Summer Palace of China. While these are so singular as rather to surprise than please upon our first viewing them, yet meritorious qualities quickly appear; for there is an amount of vigour displayed in their ornamentation and a revelation of power to deal with most difficult matters of art such as cannot fail to make an impression upon the observer who attentively considers them.

Clouds and animal forms are unquestionably beautiful, yet it is difficult to apply them to the purposes of the ornamentist; but while difficult it is not impossible, as the works which are now before us sufficiently testify.

The more important carpet, which is of large dimensions, is in form a parallelogram, has a "set" border, and a blue-black velvet ground. The enrichment of the field consists of the conventional forms so well known as the symbolic clouds of the Chinese, coloured blue, green, and two shades of vermilion, and outlined with gold, together with a number of grotesque creatures flying and running in every direction and animated by excessive life. These are fine examples of the grotesque, and combine with the clouds to fill a wonderful sky which undoubtedly represents the Elysian plains of the Chinaman, their much-coveted hunting-ground; and, while it may seem remarkable that the "world in the sky" should be portrayed on the floor, the producers of the work probably deem it nothing but right that the chief of a celestial empire should be seated upon the clouds, and some such notion has probably possessed the mind of its originator. The border consists of a simple alternate arrangement of a conventional cloud, and the Chinese ornament corresponds with the Anthemion of the Greeks.

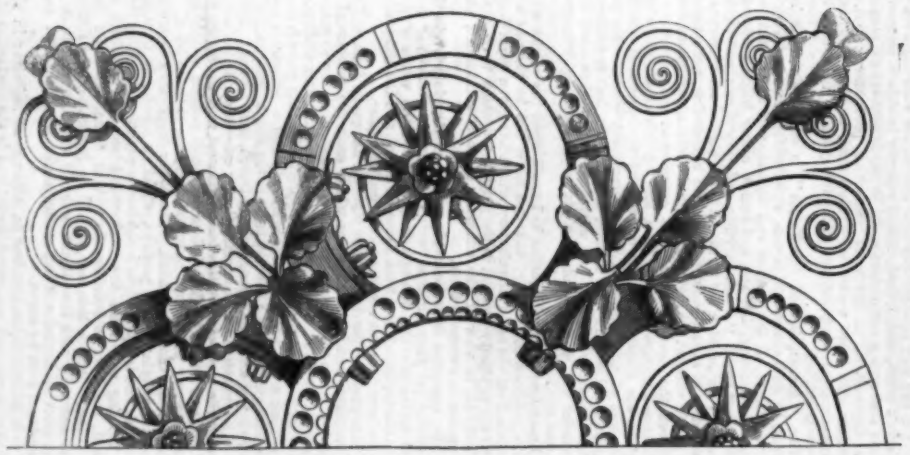
The smaller carpet is of a less interesting character, and has a yellow ground, on which are spread butterflies sporting with the flowers; yet in this the manner in which some of the flowers are treated must be commended; nevertheless, it is altogether unsuited to the purpose for which it is intended, and even the larger work is, in this respect, not much more appropriate.

* Prayer-carpets have a pattern running in one direction: when in use, the pattern points to Mecca.



HEREFORD SCREEN, DESIGNED BY G. G. SCOTT, R.A., MANUFACTURED BY SKIDMORE'S ART-MANUFACTURERS' COMPANY, COVENTRY.

ANGEL FROM THE HEREFORD SCREEN.



DETAIL OF GRILLE FROM THE HEREFORD SCREEN.

CAPITAL AND PORTION OF SHAFT OF COLUMN FROM THE HEREFORD SCREEN.

ANGELS FROM THE HEREFORD SCREEN.—SEE NEXT PAGE.

THE HEREFORD SCREEN IN THE INTERNATIONAL EXHIBITION.

It is said that when the celebrated Sir Walter Scott heard of the intention to light Edinburgh by gas he ridiculed the idea, and sneeringly asked if it were possible to light a city with coal smoke? It is strange that the greatest minds have in some cases ridiculed the brightest projects which have had birth in the human mind, and have hastily pronounced them Utopian and ephemeral because they could see no means by which the proposed end might be achieved. So was it in the case to which we have referred; but in spite of the sneers and the contempt of this great mind, and the discouragement which followed in consequence, the "coal-smoke" project was carried into effect, and floods of gaslight now illumine the great capital of Scotland, and thus the sneer is rebutted by the accomplished work. Similar opposition was encountered by those who promulgated the idea of propelling a vessel across the Atlantic by steam power, and one of our greatest philosophers undertook a mathematical demonstration of the utter absurdity of the idea, and imagined that he proved it impossible for a vessel to carry sufficient coal for the journey, even if she took no other cargo. But courage and perseverance have in this instance also triumphed over the obstacles thrown in their way. We have heard of their glorious achievements; we have seen them for ourselves; and, whilst our hearts have gloried in their conquests, we learn to bow with reverence, and own how vain is the attempt to stay the march of Progress. Truth may be oppressed, but no force can ever annihilate her; she may be trampled under foot, but soon she rises triumphant over all her enemies, and, calm in her own sublimity, heeds not the malice of her foes who now lie harmless far beneath her.

It is scarcely ten years since many of our most distinguished architects set themselves to oppose the introduction, or at least the extensive use of, iron or other metals for architectural purposes, and maintained with the utmost virulence that it was impossible to invest iron with architectural features, and that the use of metal would involve the sacrifice of art. Mr. Skidmore was at this time regarded as a man of more enthusiasm than judgment—as the keeper of a hobby which might please him, but which it was hoped he would keep to himself and not trouble any one else to ride. Indeed, he was regarded by some almost as a monomaniac—nothing but metal. This was the manner in which too many of our architects regarded Mr. Skidmore, and thus his path was beset with difficulties, and his way made rough and thorny. But how does the matter now stand? The reply can be given in few words: the battle has been fought; the victory has been won; and, in spite of almost inconceivable obstacles, the Hereford screen stands before us in the exhibition as the grandest and most triumphant achievement of modern architectural art—a monument which elicits the highest eulogiums from the most cultivated minds of the nations, which embodies the most subtle qualities of beauty which the mind can conceive, and hushes to silence all objectors; for by gazing upon it their preconceived notions become blasted and withered as by the petrifying glance of a Medusa.

This work, in which metal has in all probability taken the most noble form that it has ever been made to assume, fitly illustrates the most glorious scene ever enacted on this earth—the Ascension of our Lord. In the cusped oval in the centre of the work, standing upon a capital round which the passion-flower is arranged with peculiar skill, is the Saviour risen above the suffering which the flower portrays, and which now lies beneath him as a great enemy which he has overcome. "He has risen" and now entered into the regions of eternal life—an idea beautifully shadowed forth in the "everlasting flowers" composing that portion of the screen which surrounds the figure of "our risen Lord." At each side are angels hymning his glad welcome to the skies; and how full of wondering adoration is their gaze!

The Trinity is symbolised by three circular spaces around; and surmounting all is the cross, the instrument of his passion and of his final triumph over sin and death; and in its elevated position it stands as a symbol of our faith and as a token of the salvation worked out upon it. All works of Christian art which we have seen prior to this have been comparatively unimpressive, but the exceeding tranquillity and the felicitous expression of the Saviour, from whose mouth the words "My peace I leave with you" seem to drop," the seraphic wonder of the angels, and the tenderness of the impressive symbolism, appeal to the most inward feelings and deepest susceptibilities of our nature with peculiar power.

It is a choir-screen—the boundary of that portion of the edifice in which the praises of the Lord are to be hymned in the soft strains of music—music which calms the angry tumult in the bosom and soothes the troubled spirit, lulling it to reverie and love. So we have not only the theme of the song in the central passage of the work, but the mode of utterance in the side angels which, with raised wings of a most unearthly fashion, are harping on their harps to the praise of Him who has died and has risen from the dead.

The harmony of the work with its position and office in the cathedral is apparent in view of the nature of its utterances; and, while it is altogether new in character, the dignity of its structural qualities causes it appropriately to unite with the exalted character of the Norman architecture, and in minor details the work is adapted to its position, for the central passage-opening has received its present form in view of a large two-light window in the east end of the cathedral, which will now appear through the arches.

The teachings and significance of an art-work demand primary consideration, for these appeal to the spiritual or more exalted nature; but after and beneath these in importance is that which appeals to the intellect, and induces delight or dissatisfaction by acting upon other sensibilities. It will be found, in relation to the teachings which deal with the spiritual or moral nature, that in some instances a work which in certain respects is of a degraded style of art will yet awaken exalted thoughts, as an ignorant man may perchance stir the keenest susceptibilities of our nature. It is not so with that which appeals to the intellect, for a man cannot by his expression manifest more knowledge than he has, let the utterance take what form it may. A man to appear educated must be so, and to appear wise must have wisdom.

A work of the character of that before us, when considered as a mental utterance, and as addressing itself to the intellect, must be considered as appealing to us by three qualities—the manner in which it fulfils its purpose, considered structurally and from a utilitarian point of view; the manner in which the structure is enriched and the work is rendered an object of beauty in view of the ornament applied to it; and the manner in which colour is added as a further means of increasing its charms.

The general structure of the work will be apparent from our Engraving, and will be seen to be of a judicious character, inasmuch as the whole work is put together upon a plan which conveys to the mind a sense of security. The massive horizontal cornice-like beam which forms the uppermost boundary of the work is sustained by a system of arches which rest upon columns firmly knit together below by a transom, and is broken in the middle by the grand central passage of the work, which combines with the remainder to form an arcade. But the only point on which we now desire the attention to dwell is the true structural principles upon which the work is constructed. Not only are the constructive members of the work manifested or exposed to view, but they are also emphasised by a peculiar treatment, and thus rendered attractive—a feature to be commended, for construction is of primary importance. The work is not only to have its parts so arranged that it will stand, but it is to be an object of utility, which requires that the parts shall be so disposed that the whole will answer the purpose of its creation. The object of the screen is manifestly that of cutting off from the remainder of the cathedral a portion for the purpose of worship without destroying the unity of the edifice, but will permit it to be viewed as a whole while a portion is set apart for a special purpose. This being the object of the work, its perfect adaptation to the requirements will be apparent, it being in every way calculated to answer such an end.

Viewing the work in its true light, as an object of beauty as well as of utility, it will be seen to present to the eye forms and combinations of shapes which awaken a sense of delight within us; and we are disposed to think that there are but few persons who may not cultivate their perception of the beautiful for a long period of time, and yet find in this work that which will administer to their highly-cultivated taste. While structure must be carefully considered with reference to more utilitarian ends, the constructive members must be arranged with a view to the beauty of the work, if it is to be of an architectural character, for the agreeable setting-out and distribution of the primary parts must form the first step in securing the beauty of the structure.

A pillar, as a mere supporting member, may be but a plain cylindrical block, and in this condition it will answer utilitarian ends as perfectly as if its surface were chased with refined forms; but as a work of beauty something more is necessary. In the rood-screen which we are now considering the large pillars are enriched throughout their lower portions with a diaper treatment, and around the upper parts are spirally wound ornaments of foliage and voluted flowers of a character which will appear in our detailed Engraving. The centre of the column is bound round by a jewelled belt, which separates the upper and the lower enrichments. The capitals are formed of sheet metal, worked into form by the point of the hammer, and are of the deepest interest on account of their beauty and the manner in which they settle a contested point as to whether metal-work can have shade and shadow in an art point of view: the delicacy of the half tints, the depth of the shade, and the sharp and effective shadows telling in decided contrast to the lights must for ever set the question at rest.

The arches are chiefly filled in with bold filigree-work, and the spandrils with a foliaceous composition; the cornice is also enriched with leafage; and the crockets of the pediment are formed of foliage and flowers, while the grilles of the lower portion of the screen are enriched with similar materials. But the leafage and the flowers are not of an imitative character; for, having passed through the mind of a great ornamentist, they have come out in a conventional form, endowed with the qualities of art, and subordinated to the position they were to occupy, the material of which they were to be formed, and the mode in which they were to be wrought. The foliaceous compositions as they occur in the screen are true ornaments, the leaves being united into decorative compositions, which by their innate merit assert their claim to be ranked with works of the highest merit in ornamental art; and so exalted are the parts of this screen, both in the nature of the forms and the character of their grouping, that every leaf, and every flower, and every combination of parts, may be studied with great advantage, and be regarded as an example of the most exalted form of art-work.

One feature of the screen which should not be overlooked or passed slightingly is the open manifestation which we have, upon viewing it, of the mode of its formation: it has resulted from the work of the hammer and the chisel—*it is wrought*. Every detail speaks of this mode of production, and nothing can be conceived more fully adapted to this style of work, and at the same time more beautiful, than some portions of the work before us; as, for instance, the voluted flowers of the chief pillars, as seen in our detailed Engraving.

Relative to the figures, it should be noticed that drapery in any hard material should consist of long flowing lines with little abrupt curvature, and this principle of work is very apparent in these figures. The diaper on the garment of the harp-player is also very characteristic of iron workmanship, besides being extremely effective in design: the punched holes forming the band of this diaper is worthy of special attention for these good qualities. The bands of ornament and lines of scrollwork which enrich the garments of these figures are also extremely good and characteristic of the material in which they are worked.

Beautiful as this screen is in view of its architectural qualities and ornamental enrichments, its aspect is yet much enhanced by the manner in which it is coloured. One feature of the work, which is both unique and interesting, is the using of various metals as a means of colour. The work is primarily constructed of iron, but copper and brass enter largely into the composition of its enrichments, the one furnishing red, the other yellow. Thus the entire shafts of the smaller columns and the diapered halves of the larger pillars are brass; the capitals, the figures, and the cornice running round the upper portion of the work are of dead or frosted copper. Iron, copper, and brass are the chief materials of which the work is constructed.

Every chemist is acquainted with the beautiful colours of some of the oxydes of the metals; but Mr. Skidmore has attempted the utilising such by applying them to the colouring of the iron; thus, as his work is formed of iron, copper, and brass, he has applied to it the colours of the oxydes of these metals, and has confined himself to the tints thus derived.

No one can gaze upon a furnace of molten metal without being impressed with the grandeur of its colour, but a furnace of brass is beautiful beyond all description. In the wildest movements, lambent flames of a thousand hues play in frantic activity, all radiant with light, thus veiling the glowing metal as with a transparent rainbow-tinted tissue when agitated by the evening zephyrs; yet it is as a palace for the fiends, a pandemonium with a translucent-coloured atmosphere as the source of its light.

Such sights as this have given origin to the colour of the Hereford screen, and its glowing colours have arisen out of the crucible and the furnace; hence, in colouring the metals, Mr. Skidmore only applies to them what is naturally their own, and the colours with which Nature endows them when they rust or oxydise either rapidly in the furnace or by the slow process resulting from exposure to the atmosphere.

It would be impossible to convey a just idea of the colouring of this work by words; it is not, however, extravagant or eccentric, as its origin might suggest, but is, on the contrary, exceedingly rich and beautiful, and is in every way calculated to render the work suited to its position. In the upper portion two browns prevail, blue-green and gold being sparingly used to assist form and enliven the effect. The upper portions of the larger columns have alternately blue-green and low-toned purple grounds; but, to take an example, we will select the green, and make reference to our detailed drawing of the capital and portion of the shaft: the leafage and the central portion of the flower are here brass, while the helix or coil, which is repeated five times round the flower, is a glorious red in one case and a low purple in another—these two colours alternating in the consecutive flowers. The capital is copper, and the belt at its base brass.

In the lower portion of the work chocolate, purple, copper-colour, and blue-green prevail, and red and cream-colour are used to impart life, while the structural members are emphasised by the primary colours which are employed in mosaic—30,000 pieces of which occur in this work. As a work of colour it surpasses all that we have hitherto seen, and demands the highest commendation.

We have spent two columns of our Journal in an attempt at preparing the mind for rightly viewing the most noble work of modern times; and as it is the largest art-work in metal of which we have knowledge, so it is also the best, and stands forth to the world as a monument of the surpassing skill of our land and our age. We have in this work that which will not only hand down the fame of its distinguished originator, Mr. Scott, and the power of Mr. Skidmore, its executor, as a worker of the metals, but that also which will, when viewed through the vista of ages, elevate our time and our name in the estimation of the generations yet to come, and will lead them to laud our skill in architecture or beautiful building, our judgment in composition, and our masterly knowledge of colouring.

From a Parliamentary return, just issued, it appears that the number of persons who have been certified by the Masters to be of unsound mind on an inquiry without a jury, pursuant to the Act 16 and 17 Vic., c. 70, is 555. The number of lunatics reported by the Masters to the Lord Chancellor under the Act 8 and 9 Vic., c. 100, s. 95, has been 33.

The inauguration of the railway from Algiers to Blidah took place on the 15th, according to previous announcement. At half-past seven in the morning the train of honour left Algiers with Marshal the Duke de Malakoff, General de Martimprey, and others of the superior military and civil authorities, and arrived in due time at Blidah, the station at which place was handsomely fitted up for the occasion, and where an immense crowd of Arabs had assembled. The Governor, on alighting, was received by the Mayor of the place, who made an appropriate speech, which was replied to by the Marshal in suitable terms. A "Te Deum" was afterwards sung in the church, although the building is not yet completely finished. After the mass the Marshal and a numerous party went to the Olive Garden, where a splendid luncheon was prepared under the trees. M. Bosland, Vice-President of the Board of Directors of the Railway Company, proposed a toast to the prosperity of the colony and to the health of the Governor-General, which was drunk with load applause, and to which the Duke de Malakoff replied in expressions which were received with loud cheers. The guests returned to Algiers in the afternoon.

TAPESTRIES OF GOBELINS AND BEAUVAIS, AND THE CHINA OF SÈVRES.

Full as the exhibition is of beautiful and interesting objects, possibly no one division could be selected which contains in the same space such a rich and interesting series of works as that of which we now treat; for in the front we have the china from Sèvres, which makes the world marvel, and has justly earned a celebrity which no other enjoys, and at the back we have the inimitable tapestries of Gobelins and Beauvais. Setting aside for a moment the exceeding beauty of these works, they are yet full of interest, for we may with propriety regard them as a concentration and setting forth of the newest discoveries and profound researches of the most distinguished chemists in every branch of their science, which will permit of advantageous application to the potter's art in the one case, and the dyeing of threads in the other, of the most cultivated and experienced eyes and the most profoundly philosophical minds in respect to colour, and of the most eminent artists in composition and painting. They may be regarded as a kind of efflorescence proceeding from the entire intellect of France which is capable of administering to the desired end, or what we can imagine might issue forth where the best chemists, chromatists, artists, artisans, and potters put under a hydraulic press if the exudation assumed a congealed form, they are, in fact, the most carefully nourished outgrowths of the master minds of the nation.

The tapestries of the Imperial manufactory at Gobelins and of the sister institution of Beauvais have long been coveted by the opulent of every land, and at this very day they are as highly prised as when the Royal works were first established two centuries since. Their present exhibit consists of four tapestries and two carpets—the large central tapestry, that immediately to its right, containing a full-length portrait figure, and the two carpets are from the parent institution (Gobelins), and the fruit pieces to the right and left from Beauvais. The central work, which is of great magnificence, is after the celebrated picture at Venice—"The Assumption of the Virgin," by Titian. Here we have needlework entering into competition with the pigments of the artist, which can be spread as transparent films, heaped in effective masses, modified by mediums so as to be fitted for producing the most varied effects, having tackiness in the one case, which renders them fit for "dragging;" and fluidity, which renders them adapted for "glazing" in another; and, with all this, being susceptible of diversified modes of handling. This is a dangerous competition for threads to enter into, however varied and brilliant their hues; yet a contest in which the less felicitous material suffers little ignominy.

Were we not familiar with the tapestries of which we write, we should have difficulty in understanding how the work of the needle could in any way satisfactorily bear comparison with the work of the painter's brush, and, indeed, should scarcely be able to persuade ourselves that such a comparison could be made without its resulting in the degradation of the more mechanical productions; but, being familiar with these works, we confess that, in some respects, they surpass many noble paintings, and in few qualities are inferior to any, however exalted.

The "Assumption of the Virgin" is one of those productions which, by its transcendant merits, cuts itself off from just description, as it realises all the charms and delicacies of the original work—expression, energy, delicacy, and tone of colour being rendered with the utmost truth, the rich harmony and glow of refulgent light being also fully embodied in the work. The toil and labour necessary to the production of such a work, it is difficult to conceive; not a thread can be placed without the most careful consideration, and not a colour used without the sanction of a most experienced eye, as colours when juxtaposed acquire abnormal hues, and yet this tapestry in which the figures are lifesize, finds its commercial equivalents in £6000. To the right of this central and most important work, is the portrait tapestry of Louis XIV, of France, in which the flesh is rendered with a faithfulness which is seldom witnessed, and a softness and delicacy pervades the whole, while the art pays becoming honour to the person of a king.

Encomiums may with justice be heaped upon the works which we have just been considering, but this must not be the case with the carpets from the same manufactory which has given them birth, for they are so utterly unfitted to the purpose for which they have been fabricated, in view of the character of their enrichment, that we cannot even commend them.

The tapestries from Beauvais are in no way inferior to those of Gobelins, yet they differ so widely in character that a mere glance will suffice for the distinguishing between the works of the two manufactories. Those from Beauvais are of still-life and fruit, while those from Gobelins are of an historical character.

The work to the left of the observer has game, fruit, and a large silver salver resting on two steps which cross the foreground of the picture, where the chiaroscuro, and light and shade are so successfully managed as to render it difficult to imagine the work otherwise than in relief. A dog sitting on the step guarding the game is anxiously watching a cat, which is peeping from behind a balustrade; and, as the background to the picture, there is the sky, a dense garden hedge-row clipped after the manner of the Dutch, and flowers. This work is in its imitative qualities marvellously successful; but is not merely the servile work of imitation but is endowed with the higher qualities of art, and reflects to the beholder no small portion of that soft and rich harmony which must have had dominion in the mind of its producer at the time of its birth. The other work from Beauvais is in the same style, and is, perhaps, equal in merit; it is chaste and elegant, and is endowed with the subtle qualities of exalted art.

Turning now from the background to the objects nearer at hand, we have to consider the Sèvres china, with its manifold beauties. But, in this case, it will be impossible to do more than deal generally with the subject, and call attention to one or two of the most celebrated articles, as the works here exhibited are to be numbered even by scores.

It is difficult to imagine how an attempt at imitating in clay the shell of a calabash or a gourd should lead to the production of works such as now claim consideration; and yet there is every reason to believe that this was the origin of the potter's art, and even now the earthen vessels of some of the less exalted families of mankind are little better than the indurated husk which they resemble.

The greatest novelty set before us in the Sèvres collection is what we might with a considerable amount of justice call the chameleon's colour, as it has not always the same hue, being a grey green when seen by day and a red when seen by night. We are not in a position to explain the extraordinary metamorphosis which this colour undergoes, all we can do is join in the admiring wonder which fills the hearts of all when a great and beautiful discovery is disclosed before them. This colour occurs in the large vases which stand immediately at the right and left of the entrance to the inner portion of the Sèvres collection, in two large tazzas in near proximity to these works, and in two vases immediately beneath the tapestries.

The most exalted works, artistically considered, are perhaps the vases containing the subjects "News of Peace" and "News of War" in the front of the stand, where we have an infant band forming a belt round the body of each vase, wrought in warm purple, and grouped with the utmost skill in a manner expressive of the subject. It is difficult to say whether in this instance the conception of the work or the manipulation indicates the greatest exaltation in the department in which the artists who produced it laboured, for in both respects it is a work of the highest excellence. The subjects are wrought on white grounds—the natural colour of the China—which is ever to be commended; but, in order to render the other parts unobtrusive, they are toned with a soft green-grey, which is enlivened by the addition of a little gold.

The enamel works are, perhaps, the next in importance and interest, as these evince the overcoming of great practical difficulties and combine with skilful handicraft an exalted art; and these, following a descending scale, are succeeded by the two vases with turquoise grounds, bearing the subjects "La Pêcheuse" and "La Floriste," which are worthy of the highest commendation in view of many excellences; and these by the vase in blue and gold bearing the medallion-subject, after a celebrated picture by Correggio; but it is impossible to particularise in a collection replete with riches: recherché is every article, and the epithet *magnum bonum* may be applied to every work.

A correspondent of a Viennese paper gravely announces that Garibaldi is being supplied with funds by the English Bible Societies!

MILITARY ENGINEERING AND ORDNANCE AT THE INTERNATIONAL EXHIBITION.

WE can all of us remember that, in 1851, sanguine men seemed to regard the opening of the first International Exhibition as something very like the inauguration of the "thousand years of peace." Swords were to be beaten into ploughshares, spears into pruning-hooks, and men—civilised European men, for of course we cannot take account of the outer barbarians—were to learn war no more. The British lion was to eat straw like the ox; the fierce birds of the Continent, eagles double and single headed, were to become as doves; while henceforth and for ever the universal motto of the happy family of Adam was to be "peace on earth and goodwill towards men."

As we think of the strange sequel, we can scarcely credit our memory when it recalls all this as having been sung, written, and preached eleven years ago. We know it was so; and, with what humility we can muster, may read a curious comment upon it in class 11 of this year's exhibition. Not the least suggestive fact in this is, that the foremost exhibitor of implements of war appeared in 1851 as an exhibitor of hydraulic engines. He is a military knight now, and he has won his spurs nobly, doing, moreover, more towards hastening the reign of peace—ay, incalculably more, than an abortive Peace Society would care to admit.

Our duty in treating of this department is materially lightened, by the general interest which the public has lately taken in everything pertaining to it, and the great amount of information which has been diffused by the public press. Our own illustrated articles upon the Armstrong gun will be fresh in the minds of our readers. Of this formidable implement a large and most interesting exhibition is made, wherein may be seen not only the perfected gun, but every stage in its manufacture, from the primal coil of rough metal to the exquisitely-finished complete weapon. The rifling apparatus, gauges, and other appliances used in its construction; the missiles discharged fromit—in short, everything connected both with its manufacture and use—are displayed with an absence of reserve that stands in curious contrast with the modest reticence of our French neighbours, of whose artillery there is not a single example in the building. In the Armstrong trophy there is one barrel especially worthy of notice. It is devoted to the illustration of the capacities of the rifling apparatus, and shows almost every variety of groove. One of these grooves, possessing the usual degree of turn, undulates throughout its length, and presents on the bottom a regular irregularity, while another is zigzag, and so on. But, from the opening of the building to the sound of the bells for clearing out, this display has been so besieged by eager examiners that to enter further into detail would be a work of supererogation.

Among the British cannon we find examples of every gun of any celebrity—the Blakeney gun, the guns of the Mersey Steel and Iron Company, the Lancaster, the Whitworth, &c.

Mr. Lancaster exhibits his oval-bore cannon, with shot and shell for its service; and also examples of the rifle which proved so eminently successful in the recent official trials at Woolwich. The system of construction is briefly described thus:—"The inside of the barrel is cut by proper machinery in spiral form, the difference between major and minor axis being ·012 of an inch." While admitting the value of more recently-invented weapons, let us take care not to overlook those of Mr. Lancaster, remembering the tried services both of his artillery and smallarms in the Crimean War and in the Indian mutiny.

A very interesting collection of guns and projectiles is contributed by the Whitworth Ordnance Company. The guns range in size from the 1-pounder to the 70-pounder, and comprise examples of both breech and muzzle loaders. In every case the bore is hexagonal in its cross-section, and in the rifling the pitch is equal to twenty times the diameter of the bore. Messrs. Whitworth state the range of their 12-pounder rifled cannon, with a 12-lb. shot and 1¼lb. of powder, as follows:—At point blank, 380 yards; at 1 deg. of elevation, 900 yards; at 5deg., 2600 yards; at 10deg., 4500 yards; at 20deg., 7000 yards; at 35deg., 10,000 yards, or about 5¾ English miles! Now, in spite of our boyhood's faith in "Queen Elizabeth's pocket-pistol," we are reluctantly compelled to the thought that the longbow had been pulled, after all, in the well-known

> Sponge me well and keep me clean,
> I'll land a ball on Calais Green.

To be sure, the venerable rhymester does not give the stand-point for the weapon; but when we were young any less remote than Dover Cliff would have been indignantly scouted.

To come back from our little digression. The curious in these matters will be interested in examining the various examples of cannon contributed by the Continental nations. From the competition France seems to be the only country absent.

A very beautiful gun of small calibre, and constructed of cast steel, is contributed by Russia. A label attached to it informs us that it has withstood a test equivalent to 4000 charges. This argues a degree of tenacity in the metal of which it is composed, second only—if second, indeed, it be—to that of which the Prussian cannon are made.

Beside the small field-piece exhibited under the western dome, Prussia contributes an interesting collection of gun-barrels of the famous steel of Messrs. Krupp, of Essen. They are shown, together with various specimens of the metal, including one ingot of thirty tons weight, in the western annexe. When we examine the illustrations here offered of the texture (so to speak) of this steel, we cease to be surprised that the guns made from it have borne with impunity the rigid test that has been applied to some of them. This consists of sealing securely the muzzle of the gun, after having previously filled the barrel with powder; when, on application of the fuse, the whole charge burns away harmlessly through the touch-hole, leaving the barrel perfect and flawless.

In the same portion of the building is an example of Spanish artillery, while that of Italy may be seen in one of the southern courts in the shape of two specimens of the cumbrous but effective Cavalli gun.

Colonel Shafto Adair exhibits an elaborate model, illustrating the defensive capabilities of London. The lines include an area of 22×14 miles, and are here shown on the scale of six inches to the mile. We are here presented with a most complete scheme of fortification, one in which no element of effective defence seems omitted. It is in no disparagement of the ingenuity of the gallant Colonel's plan that we say we think the time has scarcely come for the expenditure of over four millions of money upon fortifications for our metropolis.

Lieutenant-Colonel A. Lane Fox shows an ingenious model, illustrating the parabolic theory of the range of projectiles in vacuo. It appears to us simple and easy of comprehension. For an interesting account of this model we may refer our readers to the fifth volume of the "Journal of the Royal United Service Institution."

We are glad to see that the ingenious contrivances of Sergeant-Major Jones, R.E., have been rewarded by a medal. The leading feature in these is the varied applications of the iron bands of gabions. Models are shown illustrating their use as bearers for field suspension-bridges, as rafters for the roofs of military field-huts, and for numerous other purposes.

Some of the contributions of the Secretary of State for War have already been alluded to. In conclusion, we may just enumerate, as very worthy of attention, the models of ambulances; that of the ballistic gun and pendulum; the collection of cartridges, fuses, projectiles, &c.; and the specimens illustrative of the manufacture of the Enfield rifle and smallarms. The last is, in its way, as complete as the illustration of the rifle-gun manufacture, every stage in the progress of the manufacture being fully exemplified. If we have been unable to teach our foreign friends, at least we have shown them what we are doing, and how we do it, without fear and without reserve. Let us hope that they carry away with them the double assurance that we are doing our best to be prepared for the worst emergency that may befal, and that we are ready, when the time shall come, to be among the first to spike our guns and stick an olive-branch in every muzzle.

The *Sydney Herald* states that a specimen of the diamond snake, measuring 12ft., and of considerable thickness, is being taken to England by the steward of the Rifleman for presentation to the Zoological Society of London. The reptile is at present in a dormant state, this being the season at which these creatures are inactive. Every care has, however, been taken to keep it alive. It is snugly ensconced in a cask lined with sheepskins.

MICROSCOPES IN THE INTERNATIONAL EXHIBITION.

AMONG the innumerable philosophical instruments shown in class 13 of the International Exhibition, there is probably none in which the general public takes a greater interest than in the microscope. There is scarcely a town in the kingdom of any importance but has its microscopical society, scarcely a conversazione or soirée of "Athenæum" or "mechanics' institute" at which the microscope is not one of the chief attractions. No one can attend such an entertainment without observing the crowds that gather round these instruments, eager to catch a glimpse of the minute marvels it reveals—of the circulation of the blood in a frog's tongue, or the structure of the lining membrane of a flea's stomach. But far beyond the gratification of uninstructed curiosity its important services in aid of physiological inquiry entitle it to some notice from us.

It is now about two centuries and a half since, nearly simultaneously, microscopes were invented in Italy and Holland. Half a century later Dr. Hooke laid the result of his investigations with the microscope before the Royal Society; and very shortly afterwards Leuwenhoek, a most painstaking and enthusiastic observer, made discoveries with most imperfect instruments which are marvellous even at the present day. A race of microscopists now arose, who, following in rapid succession, made most important additions to our knowledge of minute structures, but with little or no improvements in the construction of the instrument, until, in the year 1829, Mr. Lister made known his important improvements in the manufacture of achromatic object-glasses. These at once raised the microscope, from the clumsy and uncertain apparatus employed by Hooke and Leuwenhoek to the delicate and accurate instrument now in the use of all the physiologists and most of the medical men of our own day. For, although numerous and varied alterations and improvements have been made in the stands, the system originally laid down by Mr. Lister for the object-glasses is still invariably followed.

Let us now glance at the display of these instruments in the exhibition. In no branch of manufacture has greater advance been made during the last few years, and in none do the English makers show to greater advantage when compared with their foreign competitors. Let any one who is sceptical as to this result of a comparison examine the display in the French gallery, and then proceed across the nave and up the stairs leading to that part of the north gallery occupied by British philosophical apparatus. Here the observer cannot fail to be struck with the extensive variety of appliances for facilitating the examination of life in its earliest germs, of nature's minutest workings, and the limitless intricacies of her many marvels.

It is true that no idea of the capabilities of the instrument can be formed by seeing it as most are seen here—shut up in glass cases. The apparent confused complication of glasses and polished brass fittings tends to the bewilderment of unenlightened observers, and many, perhaps, incipient microscopists pass the cases by, regarding their contents as of too expensive a nature to suit purses of moderate length. Now, in one case alone may be seen microscopes adapted to meet all requirements—from those of the modest ardent physiologist or the wealthiest amateur to those of the humblest student, the merchant's clerk, or the gardener.

The principal exhibitors of microscopes are Smith, Beck and Beck, Ross, and Powell and Lealand; and while these three firms may be said to turn out equally good instruments, we select the first, as their case contains the greatest variety, and introduces also to the process of manufacture. On the floor of the case are arranged the castings as as they leave the mould—the work as it passes from the machine into the hands of skilled workmen till it presents itself to our notice in its finished state, as shown in the instruments on the revolving table in the centre of the case. Round the sides are ranged cabinets for holding objects, instruments for preparing delicate structures, and ornaments for fastening them on to the glass slides preparatory to examination under the microscope.

We observe also some exquisitely fine injected preparations of animal tissues. In these the finest bloodvessels are filled with carmine, and thus permanently preserved to view. Thus the student or the amateur may be provided with specimens showing, for example, delicate tissues of the brain, the pulpy structure of the retina, or the more intricate ramifications of bloodvessels in other parts of the body. We must not overlook a novelty in the display of these exhibitors. The late Professor Henslow suggested the desirability of a microscope which could be placed in a public museum and supplied with a stock of interesting and instructive objects, so arranged as to be beyond the reach of either careless or wilful injury. Messrs. Smith and Beck have carried out his suggestion, and the result is a microscope containing five hundred different objects arranged so that they can be seen with three different powers, at choice, and placed on a revolving cylinder which, while it brings them successively under view, prevents their being injured. This firm exhibits an instrument brought out at a very low price under the somewhat pretentious name of the "universal microscope." Well, all things considered, the name seems well deserved; for, taking into account the very moderate price at which it is supplied, we never saw it approached in its capabilities for receiving apparatus, the case with which it can be turned into a binocular, and the simple method whereby the object-glasses are changed without screwing or unscrewing.

We should be guilty of an unpardonable omission were we to conclude this notice without mention of the improvements effected by Mr. Wenham. What Wheatstone did for the photograph, when he contrived the stereoscope, this Mr. Wenham has done for microscopic objects. No longer a mere flat image is produced, the binocular microscope, by a contrivance for the use of both eyes, gives perfect stereoscopic relief, and at the same time saves much labour to the eyes of the spectator. We believe this to be the most important advance in the manufacture of microscopes since 1851, and it is worthy of note that Mr. Wenham has thrown his invention open to the public, although thereby he has sacrificed the means of realising a large income had he so desired. The application of his principle is fast becoming universal, and it may be satisfactory to some of our readers to know that at comparatively small outlay their instruments on the old construction can be rendered binocular, and thereby nearly doubled in their value.

It is hardly within our province to speak of the power and definition of the modern microscope, but we may be pardoned for adducing one or two illustrations. A human hair can be magnified to the size of a very large scaffold-pole; the tongue of a blowfly, to cover the floor of a large drawing-room; and of shells, so small that a cubic inch of them would allow one to every inhabitant of the globe, the forms and markings are rendered clearly visible.

A terrible storm swept over the city of Algiers and its vicinity on the 10th inst. The damage done to buildings and gardens is very great, though the tornado, as it appears to have been, did not last more than twenty minutes. Two military hospitals and two of the workshops of the artillery arsenal are nearly destroyed. Trees were torn up and houses unroofed in every direction. The storm burst over the city exactly at noon and was followed by a rain that fell in sheets. The most violent effects of the tempest were confined to the city and the Babel-Oued; the ride of Bab-Azoum and Hamma entirely escaped it.

THE JAPANESE AMBASSADORS IN RUSSIA.—The St. Petersburg journals mention the reception of the Japanese Ambassadors by the Emperor of Russia. The first Ambassador, in delivering a letter from his Sovereign, said:—"May it please your Imperial Majesty, conformably to the order of our Sovereign, the Taikoun, we come to have the honour of an audience of your Majesty. Since the conclusion of the treaty the relations between the two empires have become more and more developed. The Taikoun has consequently ordered me, in delivering this letter to your Majesty, to express the cordial sincerity of his sentiments of friendship and to reiterate the assurances set down in the treaty. Profiting by this opportunity, we offer up our wishes for the prosperity of your Imperial Majesty, and for the happiness of the people which you govern." After the above speech had been translated into Dutch by the Secretary of the Embassy, and then into Russian by a functionary of the Ministry of Foreign Affairs, Prince Gortschakoff, Vice-Chancellor of the Empire, read the following answer of the Emperor:—"It is with particular pleasure that I receive the representatives of his Majesty the Taikoun. The relations of Russia with Japan have always been friendly. The neighbourhood of the two empires, and the general interests which result therefrom, are a pledge for the continuance and consolidation of our relations. I appreciate the friendship of which the Taikoun gives proof by sending me an embassy, and the sentiments which his Majesty testifies through you. I hope that your residence in my capital will convince you of the sincere feelings of Russia towards Japan."——The Japanese Ambassadors have, since their official reception by the Emperor, paid visits to the Military Governor-General of the city, Prince Souworow; M. Moukhanow, Deputy Minister of Foreign Affairs, and the Duke of Montebello, French Ambassador.

A PILGRIMAGE TO MECCA BY AN ENGLISHMAN.

AN Englishman who has made the pilgrimage to Mecca writes to the *Times* an account of his adventures, signing himself "Haji Muhammed 'Abd ul Wahid," his *nom de voyage*:—

Having resolved to perform the Mecca pilgrimage, I spent a few months at Cairo, and on the 22nd of May embarked in a small steamer at Suez with the "mahmil," or litter, and its military escort, conveying the "kiswah," or covering for the "Kábah." On the 25th the man at the wheel informed us that we were about to pass the village of Rábikh, on the Arabian coast, and that the time had consequently arrived for changing our usual habiliments for the "ihrám," or pilgrim-costume of two towels, and for taking the various interdictory vows involved in its assumption, such as not to tie knots in any portion of our dress; not to oil the body, and not to cut our nails or hair, nor to improve the tints of the latter with the coppery red of henna. Transgression of this and other ceremonial enactments is expiated either by animal sacrifice, or gifts of fruit or cereals to the poor.

After a complete ablution and assuming the ihrám, we performed two prayer-flections, and recited the meritorious sentences beginning with the words "Labbaik Allah, huma labbaik!" "Here I am, O God, here I am! Here I am, O Unassociated One, here I am, for unto Thee belong praise, grace, and empire, O Unassociated One!"

This prayer was repeated so often, people not unfrequently rushing up to their friends and shrieking the sacred sentence in their ears, that at last it became a signal for merriment rather than an indication of piety.

On the 26th we reached Jeddar, where the utter sterility of Arabia, with its dunes and rocky hills, becomes apparent. The town, however, viewed from the sea, is not unpicturesque. Many European vessels were at anchor off the coast, and as we entered the port innumerable small fishing-boats darting in all directions, their sails no longer white, but emerald green from the intense lustre of the water, crowded around us on all sides, and reminded one by their dazzling colours and rapidity of motion of the shoals of porpoises so often seen on a voyage round the Cape.

On disembarking we were accosted by several "mutawwafs," or circuit-men, so termed in Arabic, because, besides serving as religious guides in general, their special duty is to lead the pilgrim in his seven obligatory circuits around the Kábah.

We encamped outside the town, and, having visited the tomb of "our Mother Eve," mounted our camels for Mecca. After a journey of twenty hours across the Desert, we passed the barriers which mark the outermost limits of the sacred city, and, ascending some giant steps, pitched our tents on a plain, or rather plateau, surrounded by barren rock, some of which, distant but a few yards, mask from view the birthplace of the Prophet. It was midnight; a few drops of rain were falling, and lightning played around us. Day after day we had watched its brightness from the sea, and many a faithful hájí had pointed out to his companions those fires which were Heaven's witness to the sanctity of the spot. "Al hamdu Lillah!" Thanks be to God! we were now at length to gaze upon the "Kibiah," to which every Mussulman has turned in prayer since the days of Muhammad, and which for long ages before the birth of Christianity was reverenced by the Patriarchs of the East. Soon after dawn arose from our midst the shout of "Labbaik! Labbaik!" and, passing between the rocks, we found ourselves in the main street of Mecca, and approached the "Gateway of Salvation," one of the thirty-nine portals of the Temple of Al-Haram.

On crossing the threshold we entered a vast unroofed quadrangle, a mighty amplification of the Palais Royale, having on each of its four sides a broad colonnade, divided into three aisles by a multitude of slender columns, and rising to the height of about thirty feet. Surmounting each arch of the colonnade is a small dome: in all there are 190, and at different points arise seven minarets, dating from various epochs, and of somewhat varying altitudes and architecture. The numerous pigeons which have their home within the temple have been believed never to alight upon any portion of its roof, thus miraculously testifying to the holiness of the building. This marvel having, however, of late years been suspended, many discern another omen of the approach of the long-predicted period when unbelievers shall desecrate the hallowed soil.

In the centre of the square area rises the far-famed Kábah, the funereal shade of which contrasts vividly with the sunlit walls and precipices of the town. It is a cubical structure of massive stone, the upper two-thirds of which are mantled by a black cloth embroidered with silver, and the lower portion hung with white linen. At a distance of several yards it is surrounded by a balustrade provided with lamps, which are lighted in the evening, and the space thus inclosed is the circuit-ground along which, day and night, crowds of pilgrims, performing the circular ceremony of Tawáf, realise the idea of perpetual motion. We at once advanced to the black stone imbedded in an angle of the Kábah, kissed it, and exclaimed, "Bismillah wa Allahu Akbar"—"In God's name, and God is greatest." Then we commenced the usual seven rounds, three at a walking pace and four at a brisk trot. Next followed two prayer-flections at the tomb of Abraham, after which we drank of the water of Zamzam, said to be the same which quenched the thirst of Hagar's exhausted son.

Besides the Kábah, eight minor structures adorn the quadrangle, the well of Zamzam, the library, the clockroom, the triangular staircase, and four ornamental resting-places for the orthodox sects of Hanafi, Sháfi, Málikí, and Hanbalí.

We terminated our morning duties by walking and running seven times along the streets of Safá and Marwá, so named from the flight of seven steps at each of its extremities.

After a few days spent in visiting various places of interest, such as the Slave Market and forts, and the houses of the Prophet and the Caliphs Alí and Abúbakr, we started on our six hours' journey to the mountain of Arifat, an hour's sojourn at which, even in a state of insensibility, confers the rank of hájí. It is a mountain spur of about 150 feet in height, presenting an artificial appearance from the wall encircling it and the terrace on its slope, from which the imám delivers a sermon before the departure of his congregation for Mecca. His auditors were, indeed, numerous, their tents being scattered over two or three miles of the country. A great number of their inmates were fellow-subjects of ours from India. I surprised some of my Mecca friends by informing them that Queen Victoria numbers nearly 20,000,000 of Mohammedans among her subjects.

On the 5th of June, at sunset, commencing our return, we slept at the village of Muzdalifah, and there gathered and washed seven pebbles of the size of peas, to be flung at three piles of white-washed masonry known as the Shaitans (Satans) of Muná. We acquitted ourselves satisfactorily of this duty on the festival of the 6th of June, the 10th day of the Arabian month Zú'lhijr. Each of us then sacrificed a sheep, had his hair and nails cut, exchanged the ihrám for his best apparel, and, embracing his friends, paid them the compliments of the season. The two following days the Great, the Middle, and the Little Satan were again pelted, and, bequeathing to the unfortunate inhabitants of Muná the unburied and odorous remains of nearly 100,000 animals, we returned, 80,000 strong, to Mecca. A week later, having helped to insult the tumulus of stones which marks, according to popular belief, the burial-place of Abulahab, the unbeliever, who, we learn from the Koran, has descended into hell with his wife, gatherer of sticks, I was not sorry to relinquish a shade temperature of 120 degrees, and wend my way to Jeddo, en route for England, after delegating to my brethren the recital of a prayer in my behalf at the Tomb of the Prophet at Medina.

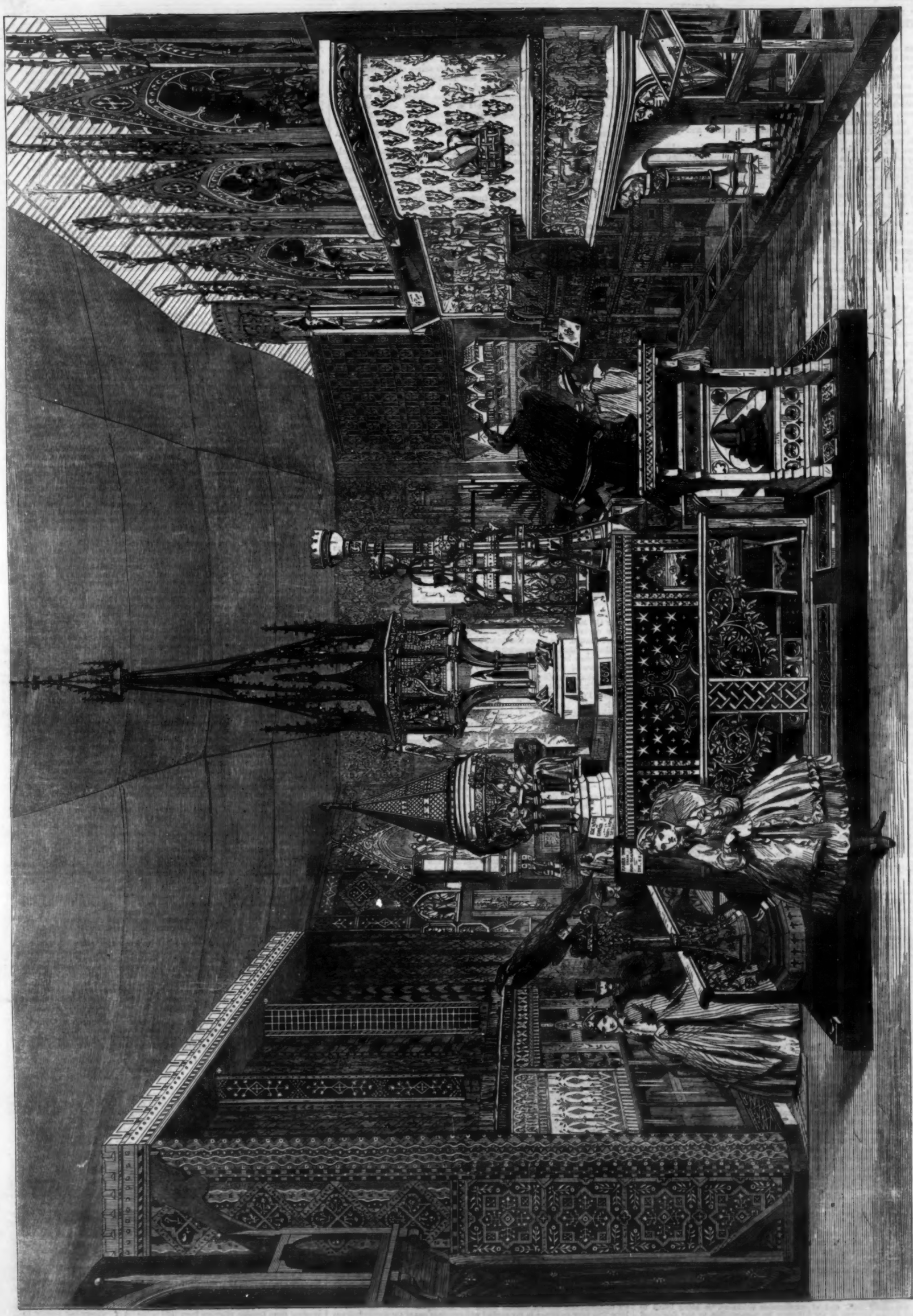
In penning these lines I am anxious to encourage other Englishmen, especially those from India, to perform the pilgrimage, without being deterred by exaggerated reports concerning the perils of the enterprise. It must, however, be understood that it is absolutely indispensable to be a Mussulman (at least externally), and to have an Arabic name. Neither the Koran nor the Sultan enjoins the killing of intrusive Jews or Christians; nevertheless, two years ago, an incognito Jew, who refused to repeat the creed, was crucified by the Mecca populace, and in the event of a pilgrim again declaring himself to be an unbeliever the authorities would be almost powerless to protect his life.

An Englishman who is sufficiently conversant with the prayers, formulæ, and customs of the Mussulmans, and possesses a sufficient guarantee of orthodoxy, need, however, apprehend no danger if he applies through the British Consulate at Cairo for an introduction to the Amír Hají, the Prince of the caravan.

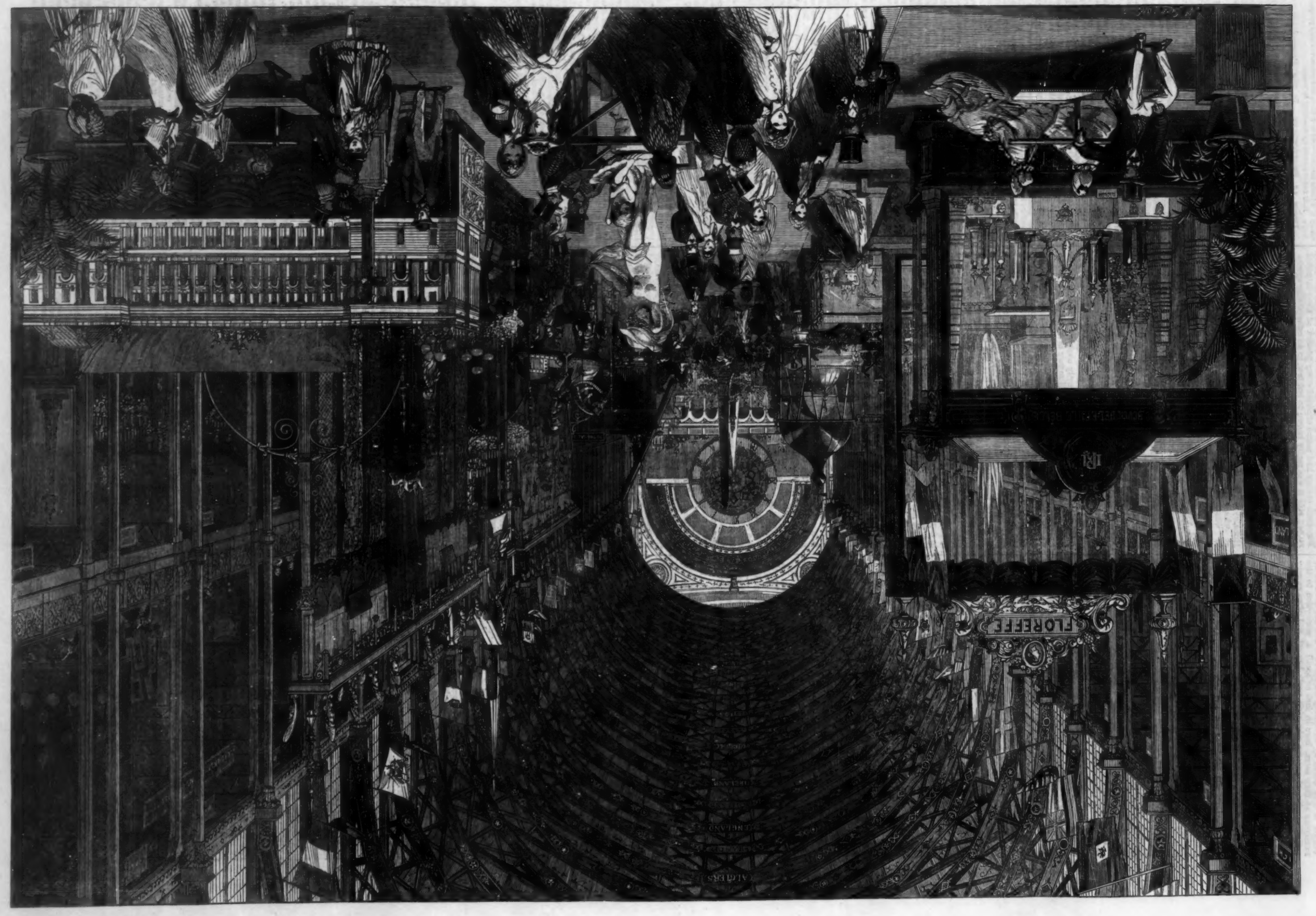
Finally, I am most anxious to recommend as Mutawwaf at Mecca Shaikh Muhammad 'Umr Fanárjízádah. He is extremely courteous and obliging, and has promised me to show to other Englishmen the same politeness which I experienced from him myself.

Doctor Elsner, the theatrical critic of the *Silesia Gazette*, was attacked a few days ago, while walking in the neighbourhood of Breslau, by an individual who threw him down and seized him by the throat, as if he intended to strangle him, exclaiming, "That is for your spiteful article on 'Lucrezia Borgia.'" Dr. Elsner had, in fact, published some days before a notice of a performance of that opera, criticising the singing of an actor who filled the part of the Duke of Ferrara. The author of this act of vengeance has not been discovered.

JERUSALEM.—The *Journal de St. Petersbourg* gives the following details respecting the works now in course of execution in Jerusalem and Palestine under the auspices of the Russian Government. A piece of ground outside the walls, on the Meidan, belonging to Russia, and containing nearly 16,000 square yards, has been inclosed by a stone wall, several houses erected in it, and four tanks constructed for a supply of water. The Cathedral of the Holy Trinity is ready to receive its cupolas, and a large house for the Russian ecclesiastical mission has been nearly completed; an hospital to receive sixty beds has reached the first floor; the next story will be finished during the year; and the foundations are laid for an asylum capable of receiving three hundred male pilgrims. Inside the city, the ground belonging to Russia near the Holy Sepulchre has been cleared of the rubbish which covered it to the height of 35ft. During these excavations remains of porticos and pillars were found, which formed part of the principal entrance to the Temple of the Holy Sepulchre in the time of Constantine. Before the end of 1862 an asylum for female pilgrims will be commenced. At present pilgrims are lodged in private houses, under the care of the Russian Consul, and there is a provisional hospital, where those who fall sick are admitted gratuitously. The donations received from Russian pilgrims from 1858 to the 1st of January last amount to 659,924 roubles, and the balance in hand at the last-named date was 105,197 roubles. A further sum of 350,000 roubles will yet be required to finish the buildings begun, and it is hoped that this amount will be obtained in due time from voluntary contributions.



THE INTERNATIONAL EXHIBITION: VIEW OF THE MEDIÆVAL COURT.



THE INTERNATIONAL EXHIBITION: VIEW OF THE NAVE LOOKING EAST.—FROM A PHOTOGRAPH BY THE LONDON STEREOSCOPIC COMPANY.

LITERATURE.

THE literary fruitfulness of travel is now so fully accepted that the wonder is that books by wandering Englishmen and Englishwomen, numerous as they seem, bear in fact so small a proportion to the actual number of persons who visit parts beyond, and often so very far beyond, the British Channel. Looking at many, if not most, of the volumes which profess to be the records of a certain amount of foreign sightseeing, it does not appear to be indispensable to their acceptance by publishers that they should be artistic, or rather workmanlike, in a literary sense. The rough notes of the diary written out pretty much after the fashion of the transcript of a speech, if they contain a sufficient quantity of matter palpable to the eye and sense of the reader, seem to suffice. We do not complain of this; on the contrary, we probably get real impressions, and often a rough originality, which would probably be looked for in vain in the poised sentences and turned periods of the professed author. Besides, in the case of these unadorned contributions to the literature of travel we get the books early; as soon almost as the voyager has returned home, and by consequence a freshness which may stand in the place of vigour of style and nicety of arrangement, whereas the auctorial need of polish and neatness of continuity implies time and labour. There is no doubt that "Eothen" was a very elegant literary production, as well as an interesting book of travels; but, if we remember rightly, the process of incubation which it went through was to be counted by years.

We have been led into these remarks after having looked through the first of several books of travel which are lying before us, entitled *Northern Europe—Denmark, Sweden, Russia—Local, Social, and Political, in* 1861; *with a Succinct Continuation down to May*, 1862. By Captain W. F. B. Laurie, her Majesty's Madras Artillery, late Commissary of Ordnance, Nagpore Force (Saunders and Otley). It is really amusing to observe the simplicity with which the gallant author (he has written books before) writes. He introduces with the air of a first discoverer the most ordinary matters connected and unconnected with his subject; parades an ancient and well-known anecdote (for instance, Charles XII. of Sweden and the bombshell) with a tone of favour, and slips into parts of his narrative every here and there reflections and every-day quotations in a manner to cause one to think that he had an interest in extending the number of pages of his book as much as possible. There is, however, happily, internal evidence of his "bona fides;" and, in truth, all this would seem to be only a sort of escape of desultory thought which incumbered his mind while he was writing, and found vent unconsciously through the medium of his pen. For it must be understood that, although his story is told in a somewhat loose way, we have the result of very keen observation and some taste in the selection of objects on which to dilate. The ground over which Captain Laurie travelled, though now becoming familiar from the works of several travellers which have been published, still possesses much of the interest which attaches to novelty. His route lay through Hamburg to Copenhagen, and thence to Gottenberg, visits being made to the Gotha Canal, the Falls of Trollhättan, and other places notable, and which it was desirable to see. The accounts of Denmark and the Danes which are here set down are very agreeable; and there is something in Captain Laurie's suggestion with regard to an alliance between this country and Denmark (including also Sweden) which he from time to time dwells upon. Perhaps this notion has not escaped the eye of our statesmen; and to that may be traced the idea of a matrimonial alliance between the heir to the throne of Great Britain and a Princess of Denmark which has been so prevalent of late. Making his way to Stockholm, our author, in his rough-and-ready way, is very full in his accounts of all that he saw, of which we shall say nothing here; and his verdict on Sweden and the Swedes is even still more satisfactory than that which he passed on Denmark. The accounts of the passage of the Baltic, including a visit to Helsingfors, to Cronstadt, and St. Petersburg, will, we think, be found as interesting as any portion of the book. On the whole, the part of the narrative which embraces St. Petersburg (beyond which the traveller did not go, and therefore that part of his title which includes Russia is but scantily redeemed is meagre and commonplace; and a run through Prussia, with a stay at Berlin, and thence through Hanover, brings our author home. There is a second part to the book of which we shall say little, except that it contains in a "Supplementary Section" a political disquisition, some "Scientific Notes," and "Useful Notes for Travellers in Northern Europe." Appended to this are what are called "Two Sectabuldee Lectures," delivered by the author in Central India, which treat of the Neilgherry Hills, and of the Mogul empire in India. Why they are here it is not easy to say. With certain notes on the subject of Russian invasion of British India, and a lengthy appendix, which contains a quantity of matter which might, we think, have been worked up into the body of the narrative, the work concludes. In all that may be called its real matter it is very readable.

It would have been strange, indeed, if the late war in China had not produced historiographers. In truth, we are surprised that hitherto the number has been so few. We have just had published by Mr. Bentley another contribution to this subject, and which, as a matter of course, covers nearly the same ground as the narratives of Mr. Swinhoe and Colonel Wolseley, which have already appeared; but being written by a gentleman of a different and a special profession from either of his predecessors, may be supposed to be produced from a comparatively new point of view. The work in question is entitled *How we Got to Pekin; a Narrative of the Campaign in China of* 1860, by the Rev. R. J. L. M'Ghee. Although a clergyman, Mr. M'Ghee does not think it necessary to assume a sombre style or to sermonise in a book of adventure. He describes with pleasantry and ease his voyage out; and chronicles all the minor miseries of a transit to the East. His account of Hong-Kong is something terrible, although it may not be meant to be so. When he comes to the narrative of the expedition there is a certain identity, of course with a difference, in his statements and those of the gentlemen whose accounts have already appeared, which makes up excellent evidence; and there are some anecdotes of a personal kind which are amusing enough. The story of the capture of the Taku Forts is well told, and goes far to justify the military tactique of Sir Hope Grant, as opposed to that of the French General, and which the British commander had the firmness to resist. Perhaps one of the most interesting and curious deductions to be gathered from this work is the unanimous testimony which it bears to the extraordinary character of the Chinese. Nothing can be more complete and pervading than the governmental system of the empire, which embraces the most minute objects, and yet the people are as little imbued with a spirit of patriotism as it is possible to conceive—anything for gain, even to the extent of availing themselves of that good fortune which has given them a country to sell. If one was to sum up one's idea of the Chinese character as we gather it from this book, one would be obliged to use very coarse language indeed. It need hardly be said that such subjects as the treacherous capture of Loch, Parkes, and Bowlby, and the subsequent infamous cruelties and murders, the burning of the Summer Palace, and the entry into Pekin, are dwelt on with due emphasis and comprehensiveness. In short, nothing has been omitted which might have been expected, and what is set down is done smartly, as smartly as the least prejudiced layman might have done it; and the result is a very entertaining book, and, better still, one which not only confirms previous accounts of one of the most remarkable military expeditions of modern times, but to a very great extent supplements and adds to that knowledge of its details and events of which the public was already in possession.

On a day not very remote six English gentlemen then resident at Simla—namely, Lord William Hay, Deputy Commissioner of Simla and Superintendent of Hill States; Major the Hon. T. de V. Fiennes, 7th Hussars; Captain Clarke, 19th Light Dragoons; Lieutenant Buckley and Ensign Scott, of the Rifles; and Lieut.-Colonel Henry Torrens, 23rd Royal Welsh Fusiliers, started on an expedition from Simla due north to Lè, the capital of Ladàk; thence westward to Sreenugga, the capital of Kashmir; thence, in a south-easterly direction viâ Chumba and Kangra, back to Simla;—in all, a circuit considerably over one thousand miles. The record of this travel, which sounds grandly to a European ear, is now brought before the public in a work written by Colonel Torrens, and issued by Messrs. Saunders and Otley, under the designation *Travels in Ladàk, Tartary, and Kashmir*. This scheme was carried out in its integrity by only two of the party, the others being obliged to leave at different points along the route in order to join their regiments before their leave of absence had expired; and, in truth, those of them who were best provided with leisure were limited to a short three months. Colonel Torrens professes to have gone over no new ground; that is to say, European energy had before explored every portion of their intended route; still it was really known to but few, to an enterprising sportsman or two, a still rarer scientific traveller, or to the persevering members of the Indian Survey Department. The way taken by the travellers was one which led them through every vicissitude of Himalayan scenery, over the high table-lands of Thibetan Tartary, into the verdant vale of Kashmir, and so back through the tamer but scarcely less beautiful scenery of the lower ranges of the Himalaya, to the tea-planted slopes of the Kangra Valley, at which point the traveller may consider his wanderings in what has been called the Alpine Punjaub at an end. Any narrative of adventures, using the word in its tamest sense, in such a region must still have a certain amount of novelty about it, and would therefore be welcome. Colonel Torrens apologises for shortcomings in the preparation of his work, consequent on the brief space in which it was written, and that in intervals of duty; but, on the whole, we may venture to say that no apology is needed. There is sequence in the statements; they are full and pointed; and the author has caught the salient bits of that which fell under his observation with success, and has produced a work which has as good a title to be read as any that has recently appeared. It should be added that the volume is illustrated with a large number of sketches of places, persons, and things characteristic of the countries through which the travellers passed.

Professor D. T. Ansted, the author of a work just published by W. H. Allen and Co., entitled *A Short Trip in Hungary and Transylvania in the Spring of* 1862, justly observes that in a certain sense, and that a very important one, Hungary is a new country to the European tourist. Before the revolution of 1848 the policy of Austria was to shut it off from all communication with the rest of Europe. All the usual passport and police regulations, troublesome enough in any case, were doubled when Hungary was the point to be reached, and few travellers cared to undergo the certain trouble for a very uncertain return of instruction and amusement. If any one who chanced to penetrate into this well-guarded land had attempted to study the real country of Hungary and the people, he certainly would have found great difficulty, and must have given up a considerable quantity of time to the matter at a comparatively short time since. Even when the frontier was passed, or a landing at some town effected, the case was even worse than before. The roads were impassable in wet weather, and enveloped in clouds of choking dust in dry seasons; inns were places in which dirt and discomfort were the only things that could be reasonably expected. Nor were the people more satisfactory than the country; for although the upper classes were always well instructed and hospitable, and essentially gentlemen, they could rarely fall in the way of the occasional traveller, who was thus for the most part obliged to associate with peasants. These were uninstructed, speaking no language but their own curious Oriental dialect, which has few, if any, affinities with any other in Europe, and were unable to give help because they had no idea of what might be wanted by those so accustomed to luxuries as to regard them as necessaries of life. No wonder, then, Hungary was unvisited twenty-five years ago. But at a much later period Hungary is described in the best guide-books as an unapproachable country; and Murray, in his "Handbook for Southern Europe," in the edition published so late as 1858, states that "it is, indeed, difficult for Englishmen to obtain permission at all to enter Hungary." Now, however "teste" the author of the work before us, we have changed all that. The Hungary of the present is not in any sense the Hungary above described. The traveller enters it and passes through it at his pleasure, and quits it when convenient, without discovering that there is a frontier and that passports exist; in short, travelling in Hungary is really now so easy and so pleasant that there is no reason why the artist, the professional man, and even the typical tourist, should not take advantage of a district in Europe where it is possible to obtain new sensations, to visit scenery not hackneyed, to study a people not yet spoiled by a large influx of travellers, and to meet those moderate difficulties and little hardships that are not only perfectly endurable but almost a pleasurable novelty. In a word, whether as regards roads and all the necessary adjuncts of transit, Hungary, though wanting railway and steam-boat development, is already in a state well adapted to the tourist. In the book before us Professor Ansted will perhaps do much to stimulate the idea of travel towards this comparatively unexplored country. His work will serve as a guide-book, using that term far away from its lowest and narrowest sense. His own route ran from Vienna to the Maros Valley, thence from Deva to the Zeil Valley, in treating of which he dwells on the Hungarian and Wallachian populations of South-Eastern Hungary, the races, their appearance and costumes, manners, customs, habitations, and churches. The next point is the Valley of Hatzeg, thence to Ruskberg and Ruskitza; and here we have accounts of the iron mines, marble quarries, and lead mines of the Zeamina, and the beech forests and charcoal-burners. But it is not necessary to fall into a table of contents, and it will suffice to say that Pesth and Gran having been duly visited and their features recorded, we have in a concluding chapter an able series of remarks on the natural history and mineral resources of Hungary, and a sketch of its political history, and of the recent changes which have taken place in a country which occupies so large and so interesting a space in the eyes of Europe. We hope we have said enough to induce a belief that this is a book which will amply repay perusal.

Beyond the newspaper biographies which appeared at the time of his death, we believe that no record of the life of Lord Macaulay has yet appeared until now, when there has been published a work headed *The Public Life of Lord Macaulay*, by the Rev. Frederick Arnold, M.A. (Tinsley Brothers). The history of this publication, as stated by the author, is briefly this:—It so happened that Mr. Arnold, as a contributor to literary periodicals, wrote several articles respecting the life and writings of Lord Macaulay. In doing this it occurred to him that an account of Macaulay's public life, based upon contemporary documents and chiefly his own written and spoken opinions, might be attempted on a somewhat larger scale than has yet been done. Such a work, he thinks, might possess some historical value, for the period of Macaulay's active political life, familiar enough to contemporaries, is to the generation born since the Reform Bill perhaps less comprehended than any similar period of English history. Mr. Arnold accordingly made various notes on Macaulay's public life, which he has now brought together in the present volume. The book is essentially a record of the public life of Macaulay; it contains few anecdotes and no gossip; it does not profess to be, nor is it, a memoir or a biography; but, beginning *ex necessitate* with an account of Macaulay's family, his boyhood, and youth, his life at Cambridge being briefly but pointedly delineated, and touching lightly on his previous literary career, it launches him into public life as member for Calne. Thenceforward the work passes through the political history of the period during which Macaulay flourished as a public man, the pictures, of course, being made subservient to the principal figure in the foreground. The Parliamentary and official career, at home and in India, of Macaulay are minutely traced, and the narrative is linked together by extracts from most of his best speeches; and it may here be said in passing that the present generation who remember a speech a year from Macaulay as a memorable and notable event will perhaps be surprised to learn how frequent a speaker he was thirty years ago, both in and out of Parliament. As we imagine that this work is likely to reach a second edition, we would venture to point out that there are some defects in what we may call the workmanship of the book which may well be amended. For these the author himself is not responsible, as circumstances prevented him superintending personally the passage of the volume through the press. On the whole, the purpose of the book is successfully carried out, and it forms at once an interesting record of the public life of a man of great mark and a contribution towards the history of a very remarkable period in the political annals of this country.

FRANCIS BACON, BARON VERULAM.—It is customary, even with men of eminence, to speak and write of "Lord Bacon," but it should be known that there is no such title in the history of the peerage. Francis Bacon was created successively Baron Verulam and Viscount St. Albans; therefore, when it is desired to indicate his works, one of these titles should be used; but to call him "Lord Bacon" is as improper as to call the present Chancellor "Lord Bethell."—*From Notes and Queries.*

SCIENTIFIC NEWS.

INFLUENCE OF SILICA ON FERMENTATION.—M. Leuchs has announced, in *Dingler's Polytechnisches Journal*, that silica precipitated from soluble glass gives rise to alcoholic fermentation in a solution of sugar, especially if a little tartaric acid be added, and preserves this property in a durable way. It is not removed by washing in water.

DISCS AS PROJECTILES.—In the *Proceedings of the Royal Society* will be found a communication of a character interesting at the present time, by Mr. R. W. Woollcombe. The paper was laid before the society with models and diagrams, which reappear as woodcuts. Mr. Woollcombe gives an account of experiments which appear to him to show that certain eccentric oblate bodies and discs, as projectiles in large guns, may effect not only an initial velocity greater than that of spherical shot, but a terminal velocity better sustained than that of rifle projectiles. Details and the results of the experiments at Shoeburyness are given.

THE PROPAGATION OF SOUND IN THE AIR.—Newton was the first to study the propagation of motion in the atmosphere, and the solution which he gave still excites the admiration of geometers, and is termed by Laplace "a monument of his genius." Sometimes, however, it does not entirely agree with experience; for instance, it gives for the swiftness of propagation a value of about a sixth below that given by observation. Since his time Lagrange, Euler, Laplace, Poisson, and other geometers, have occupied themselves with this problem with the view of either establishing the true mathematical theory or discovering the cause of the difference between calculation and experience. The subject has also been taken up by the eminent mathematician Duhamel, who has laid a memoir before his associates of the French Academy giving his calculations, whereby he arrives at this singular consequence—"that the theoretic swiftness of sound in the air, supposing that there is no elevation of temperature, is identical with that given by experience." The hypothesis of an elevation of temperature, which appears so probable, and which comes so conveniently to the assistance of the theory, becomes a difficulty, and we find ourselves compelled either to demonstrate that this hypothesis is not legitimate or to find a new and hitherto unknown cause which shall neutralise the effect. The memoir, which appears in No. 1 of the new volume of the *Comptes Rendus*, has excited some little discussion among mathematicians, and comments by M. Clausius and others have appeared. M. Duhamel, however, maintains his position.

M. RUSCHHAUPT'S apparatus for generating carbonic and other gases consists of a strong wooden tub or vessel two feet high and seventeen inches wide, having a partition near the middle. The whole inside of both partitions is lined with lead. From the upper part of the wider partition a leaden pipe leads near to the bottom of the smaller partition. A leaden vessel, perforated with holes at the bottom, is filled with carbonate of lime, marble pieces, say six pounds, and dipped, by means of a sliding-rod, into the larger partition, containing about seven pounds of hydrochloric acid. The other (smaller) partition is half filled with pure water, having a glove-valve as outlet. The vessel is closed air-tight by a strongly-braced cover. Whenever a supply of carbonic acid is desired, the leaden vessel containing the marble pieces is slid into the acid, which, passing through the leaden tube, under and through the water in the next partition to the glove-valve (for the purpose of purifying the gas from any foreign matter or chlorine carried over with the carbonic acid), is, by means of suitable pipes, conveyed wherever it may be desired. When the marble, which is a chemical combination of lime with carbonic acid (56·09 lime, with 43·91 carbonic acid), is dipped into the hydrochloric acid, the carbonic acid is thereby expelled, the lime combining with the chlorine to form chloride of lime; which, after all the carbonic acid is expelled, can be taken from the gas apparatus by a syphon without taking off the cover, and may afterwards be used for the purpose of bleaching, &c. Six pounds of marble-dust, and seven pounds of hydrochloric acid, will furnish about one hundred and seventy gallons of carbonic acid gas at a cost of about ninepence.

THE TELLURIC BANDS IN THE SOLAR SPECTRUM form the subject of a note, by M. Janssen, in the *Comptes Rendus* of the French Academy of Sciences, in which he affirms that he has recently been enabled to determine in the solar spectrum the presence of permanent rays, which ought incontestably to be attributed to the action of the terrestrial atmosphere. Several philosophers (among whom he cites Kuhn, Piazzi Smyth, Brewster, and Gladstone), have discovered in the spectrum singular bands or rays, which appeared only in the morning or evening, and vanished when the sun attained a certain height above the horizon. The temporary character of these bands caused them to be generally considered accidental. "Now," says M. Janssen, "it is incontestable that, if there exist in the solar spectrum bands due to the electric absorption of the gases of the terrestrial atmosphere, these rays must remain there permanently, and present merely variations of intensity in respect to the thickness of the layer of air traversed." To ascertain this he has constructed a new spectroscope, by the aid of which he has been enabled to follow, moment by moment, from sunrise to sunset, groups of bands always visible, varying only in intensity in accordance with the height of the atmosphere. This height, being badly known, does not permit the results to be determined with certainty. At present M. Janssen merely announces that he is still prosecuting his researches, which he will publish *in extenso* when completed by the study of the positive spectra of nitrogen and oxygen, obtained by the spark of induction or atmospheric electricity.

GEOLOGY OF IRELAND.—Professor J. B. Jukes, of the Irish Geological Survey, in the discharge of his duties, has been led to consider the probable mode of formation of some of the river valleys in the south of Ireland, and has recently laid before the Geological Society of London some of his observations. After describing the physical structure of that part of the island south of the limestone plain that extends from Dublin to Galway Bay, he proceeds to show that the Rivers Shannon, Barrow, Nore, and Suir, after traversing this low ground, escaped to the sea by ravines worn through lofty hills of old red sandstone and lower silurian rocks. He also instanced the Rivers Blackwater, Lee, and Bandon as each suddenly deserting the low longitudinal valleys through which they had run for many miles, and turning at right angles down ravines of old red sandstone, notwithstanding the fact of the longitudinal valleys being continued with no apparent obstruction to the course of the rivers. He showed the connection of these lateral ravines with the coming of strong brooks from the higher ridges of the north into the longitudinal valleys, and also that these brooks probably produced the ravines, having first begun to erode them over a surface above the present ridges, and before the formation of the longitudinal valleys. He considered the fact proved that the present "form of the ground" in the south of Ireland was produced by atmospheric erosion on dry land; and that the limestone ground was low because the rock had been dissolved chemically as well as eroded mechanically; and that its surface had sunk to a lower level than the other rocks, like that of a glacier melting in its bed. He proposed to extend this explanation generally to all dry land.

THE FORAMINIFERA.—Dr. Carpenter's introduction to the study of these remarkable beings has at length been issued by the Ray Society. He has incorporated in his work the fruits of the long-continued and valuable labours of Messrs. W. K. Parker and J. Rupert Jones in the same field, which greatly tend to simplify the classification usually adopted. They have endeavoured to act up to the character given by Schiller of the true philosopher—"That he loves Truth better than his system, and will gladly give up her old and defective form for a new and fairer one." "In the examination of these foraminifera the pysiologist finds," says Dr. Carpenter, "a case in which those vital operations which he is accustomed to see carried on by an elaborate apparatus are performed without any special instruments whatever—a little bit of homogeneous jelly changing itself into a greater variety of forms than the fabled Proteus; laying hold of its food without members, swallowing it without a mouth, digesting it without a stomach, appropriating its food without absorbing vessels or a circulatory system, moving from place to place without muscles, feeling (if it has any power to do so) without nerves; and not only this, but in many instances forming shelly coverings of a symmetry and complexity not surpassed by any of the testaceous animals. The size of some of these organisms is so small that thousands may be contained in a pillbox." The whole group of rhizopods, indeed, possesses features of especial interest to the physiologist, the zoologist, and the geologist. The volume contains twenty-two large plates and numerous woodcuts. The Ray Society was established in 1844, mainly for the publication of such valuable works on natural history as a bookseller would not publish without charge to the author. It well deserves public support. The subscription is one guinea a year.

THE EFFECTS OF REFRIGERATION ON THE NERVES has been much studied by Dr. A. Waller, and a communication from him appears in the last number of the *Proceedings of the Royal Society*. He gives the remarkable results of his experiments on a gentleman in perfectly sound health, aged twenty-seven, on Sept. 13, 1861. A freezing mixture, consisting of equal parts of pounded ice and common salt, was applied to the elbow of the left arm over the ulnar nerve for fifty-two minutes. Soon after its application the nerve began to be painful from the elbow downwards; after twenty-seven minutes' application the little finger was already somewhat paralysed and insensible. When the nerve was compressed or vibrated it was found to be very sensitive and tender, and its excitability much increased. After thirty-two minutes the symptoms were:—1st, Paralysis of the movements of the little finger almost complete; 2nd, a state of semiflexion of all the fingers, diminishing from the little one outwards, so that they could not be straightened completely by the extensor muscles; 3rd, great weakness in all the fingers and thumb, so that great difficulty was experienced in grasping or holding any object; 4th, complete loss of the power of abduction and adduction of the fingers, so that when they were extended as far as possible, they remained spread out without there being any power of bringing them together. After fifty-two minutes the freezing mixture was withdrawn, and the skin at the elbow, which was completely frozen, was allowed to thaw. During this process the arm and hand became rapidly very painful upwards and downwards in the course of the nerve, the pain even extending to the chest, where there was a feeling of great uneasiness and constriction. At the same time the heart's action was so much lowered as to threaten syncope, which was, however, prevented by a free administration of ammonia and spirits. We have no room for the details of each following day, but will merely add that on Sept. 27 the power of motion of the little finger was almost restored, but still some inability existed. The weakness of the left arm was very remarkable; and the effects of this dangerous experiment remained even in February, 1862. An account is also given of experiments on the nerves by compression.

ARTIFICIAL RAINDROPS.—M. Marcel de Serres recently sent to the French Academy of Sciences a specimen of clay on which he had produced, by means of an artificial rain, impressions similar to those of the ancient world figured and described by Sir C. Lyell and other geologists. The modern impressions differ from the ancient in being only concave circles and not having any convex impressions. He hopes to produce the latter by varying the experiments.

THE COMBUSTION OF GUNPOWDER in vacuo and in certain gases has been investigated by M. Bianchi, who employed Bunsen's voltaic battery and other apparatus for the purpose. He found that:—1. Common powder, the fulminates, and all explosives employed in firearms, in grain or mass, when loosely placed in a vacuum and submitted to the sudden action of a heat of above 2000 centigrade, burnt slowly and completely, without producing vivid deflagration, as in the air. 2. When the powder was put into a gun-barrel, shut up in a vacuum, and ignited by a platinum wire, the deflagration was as violent as in the air. 3. Gun cotton burnt slowly in a vacuum. 4. The products of combustion were the same in a vacuum as in common air. 5. The combustion of gunpowder took place in nitrogen, carbonic acid, and in other gases unsuitable to combustion, with a promptitude and vivacity nearly equal to that which takes place in air.

ILLUMINATING GAS has been frequently produced from water and liquid hydro-carbons, especially by the process of MM. Baldamus and Grune, which is based on the decomposition of the water at a red heat by the hydro-carbons. In this condition, the hydrogen of the water combines with the carbon of the hydro-carbons, in order to form a hydro-carbon more hydrogenised, and possessing a very high illuminating power. The reaction takes place in the following manner:—At this high temperature the liquid hydro-carbon is transformed into ordinary illuminating gas by abandoning part of its carbon, which decomposes the water by forming carbonic oxide, with small quantities of carbonic acid and proto-carburetted hydrogen. This gas, as well as the carbonic oxide, becomes saturated with the liquid hydro-carbon, and forms a brilliant illuminating gas. Hitherto, it is said, we have not attained to a practical solution of this problem, because the decomposition of the water and the hydro-carbons did not take place at the same time. MM. Schäffer and Walker state that by decomposing the whole in the same apparatus at the same time they have obtained results in full accordance with the theory. With this view, they arrange that a retort, heated to redness and filled with coke, shall receive at the same time the vapour and the liquid hydro-carbon. They thereby obtain a gaseous mixture possessed of an illuminating power three times that of the gas obtained from coal. They state that they can vary this illuminating power at will by admitting into the retort more or less of the vapour of water.

THE COSMICAL FEATURES OF TERRESTRIAL MAGNETISM formed the subject of the Reade lecture, delivered in the Senate House of the University of Cambridge in May last by General Sabine, so renowned for his labours in this department of science, who has devoted very much attention to it ever since his voyage to the Arctic Regions in 1819, and who has been mainly instrumental in the establishment of observatories in different parts of the globe especially devoted to the recording of magnetic phenomena. These records have been published from time to time at the expense of the Government, under General Sabine's superintendence, and now have led to remarkable generalisations, which are set forth in his lecture (printed in the last number of the *Philosophical Magazine*), which is a valuable resumé of the progress of magnetical research. We have only space here to indicate the interesting topics treated of,—"The existence of periodical laws discoverable in the mean effects of the larger magnetic disturbances" (first announced in 1851); "The existence of a periodical variation in the magnetic disturbance coinciding in period and epoch with the variation in frequency and magnitude of the solar spots," announced by M. Schwabe; "The semi-annual inequality in the diurnal variations of the declination;" and "The solar and lunar diurnal variations." All these have been closely studied, and all tend to show a remarkable cosmical connection between the sun and moon and magnetic variations observed on the earth.

LIQUIDS IN THE SPHEROIDAL STATE.—M. de Luca has sent to the French Academy of Sciences an account of his researches relative to the temperature of water thrown into vases greatly heated, which lead him to conclude that there is nothing remarkable in the phenomena presented by liquids when so treated, and that the spheroidal form they assume is in perfect accordance with the ordinary laws of physics.—*Comptes Rendus.*

THE CONSTITUTION OF SEA WATER at different depths and in different latitudes has been examined by Professor G. Forchhammer, of Copenhagen, whose remarks thereon have been communicated to the Royal Society, and appear in the *Proceedings*. He states that thirty-one elements have been found in sea water—viz., oxygen, hydrogen, nitrogen in ammonia, carbon in carbonic acid, chlorine, bromine, iodine in fuci, fluorine in combination with calcium, sulphur as sulphuric acid, phosphorus as phosphoric acid, silicium as silica; boron as boracic acid, discovered by the author both in sea water and in sea weeds; silver, in the Pocillopora alcicornis; copper very frequent, both in animals and plants of the sea; lead very frequent in marine organisms; zinc, principally in sea plants; cobalt and nickel, in sea plants; iron, manganese, aluminium, magnesium, calcium, strontium, and barium, the latter two as sulphates in fucoid plants; sodium, potassium. These twenty-seven elements the author himself had ascertained to occur in sea water. The presence of the next four elements—viz., lithium, cæsium, rubidium, and arsenic, has been shown by other chemists. A few only of these elements have any notable influence on the quantitative analyses of sea water—viz., chlorine, sulphuric acid, magnesia, lime, potash, and soda. Assuming chlorine as 100, the mean proportion of the other leading constituents is—sulphuric acid 11·99; lime, 2·96; magnesia, 11·07; all other salts, 181·1. The mean quantity of solid matter in sea water M. Forchhammer found to be 34·304 per 1000. The ocean of the equatorial regions contains the greatest percentage of saline matter—due, no doubt, to greater evaporation; and the North Atlantic contains more salt than the South Atlantic, probably due to the prevailing influence of the Gulf Stream. In the sea to the east of Africa the quantity of saline matter slightly increases with the depth.

FOOD: ITS DESTINATION AND USES.—In the *Proceedings of the Royal Society* Mr. W. S. Savory has given an account of his experiments in relation to this subject performed upon rats and a hawk. Their diet was divided into three classes:—1, a non-nitrogenous, consisting of equal parts, by weight, of arrowroot, sago, tapioca, lard, and suet, which yielded only 0·22 per cent of nitrogen; 2, nitrogenous—viz., lean veal, from which every visible particle of fat had been carefully removed, which yielded only 1·55 per cent of fat; 3, a mixed diet—the two former combined. The weight, temperature, and general condition of the animals were especially noticed. The following conclusions were drawn:—Nitrogenous materials are not only calorifacient, but, at least under some circumstances, sufficiently so to maintain alone the requisite temperature. It is in the highest degree probable that, under certain circumstances, nitrogenous materials may prove directly calorifacient without forming tissue. Non-nitrogenous substances are, at least under some circumstances, directly calorifacient without entering into the composition of tissue of any kind. While non-nitrogenous food only is taken, all the nitrogen which is excreted in the urine, and more, may be accounted for by the disintegration of the original tissues, without assuming that any fraction is assimilated from any other source. While life cannot be maintained without nitrogenous food, even though every other kind be abundantly supplied, death in this case being due to loss of tissue, life, and even health and the normal temperature can be maintained, at least for a long period, upon diet almost exclusively nitrogenous with proper inorganic substances in which there exists only a small fraction of non-nitrogenous matter. Such a minute proportion of fat must be but a poor representative of non-nitrogenous food. Lastly, in these experiments the significant fact appeared, that while the weight, strength, and general condition of the animals varied very widely under different diets to which they were subjected, no considerable fluctuation was observed in their temperature. Even the slight variation from time to time recorded seemed rather to result from other causes than depend directly on the food.

A NEW "APLANATIC" EYEPIECE FOR TELESCOPES, invented by Mr. Thornthwaite, of Newgate-street, is described in the "Notices" of the Royal Astronomical Society by Mr. T. W. Burr. Mr. Thornthwaite had improved the orthoscopic microscopic eyepiece by substituting an achromatic plano-convex lens for the meniscus. The eyeglass, in his modification, consists of a double convex crown-glass lens and a plano-concave of flint glass, forming a combination similar to one of the pairs of an achromatic microscope objective; and this construction (the field-glass remaining a crossed double convex) preserves the advantage of a large and flat field, with better definition and freedom from colour, which has induced the inventor to call it the "aplanatic" eyepiece. Mr. Burr, having employed this form in a microscope, decided to adopt it in his telescopic experiments, which, with the aid of Mr. Thornthwaite, he has effected with success. When looking at the sun or moon at least one third more of the disk of each body was visible with this eyepiece than with the corresponding Huyghenian. A similar advantage was obtained in examining the planets and clusters of stars, such as Pleiades, Presepe, and others. Small stars were brought up by the increase of power and light, without losing the advantage of a large field; and in the great nebula of Orion the effect was very beautiful, allowing the employment of a power which before was disadvantageous, as it made the object dim and contracted the field, which is now large and the nebula brilliant.

An orphan home for coolie children has been established in Trinidad, and about sixty coolie orphans are now being maintained and educated there.

A part of the forest of Milianah, in Algeria, lately caught fire and burnt for two days, destroying some thousands of oak and chestnut trees. The town of Milianah was at one time in some danger, the flames extending to within a hundred yards of the houses.

By the Peninsular mail we learn that the marriage of the King with the Princess Pia of Italy is to come off in September, and that the Palace of Ajuda is being fitted up at great expense as the future Royal residence.

The whole line between Nijni-Novgorod and St. Petersburg, by way of Moscow, has been opened to the public. The trains run twice a day, and the whole journey between Moscow and Nijni-Novgorod is performed in sixteen hours. The opening of this line just before the great fair of Novgorod will prove a great boon to Russia.

CHESS.

TO CORRESPONDENTS.

RODERIC.—Dialogue games, if we may so call them, are usually interesting to chess-players, but your interlocutors are not sufficiently discriminated; they remind us too much of the *fortes Gyas fortesque Cloanthus*. This is a fault, however, which a little attention might remedy. The games themselves are clever, and contain many instructive combinations.

SYMBELOTT.—We have no recollection of the problem in question. The mate is so obvious as to induce a suspicion that there is a mistake in the position of the men.

A SUBSCRIBER.—The committee on the chess laws were by no means unanimous as to the adoption of the proposed new code, and some members well informed on the subject offered strenuous opposition to it. Judging from the communications on the subject which have lately reached us we see no likelihood that this code will ever be accepted as binding either by the players of England or of any other country.

H. G.—Mr. Andersen is an exception to the rule of great players not being great in the composition of chess problems. Some strategems of his published many years ago are of distinguished excellence. Take for example the following:—*White:* K at Q Kt sq, Q at K sq, R at Q sq, B at Q 7th, P at Q B 2nd. *Black:* K at K B 2nd, R at Q R 3rd, B at Q Kt 7th and K Kt sq; Kts at Q R sq and K 2nd; Ps at K Kt 2nd, K B 3rd, Q B 6th, and Q Kt 3rd. White to play, and mate in five moves. This, too, is not less clever:—*White:* K at Q B 4th, Q at Q sq, R at K Kt 6th, B at Q Kt 5th, Kt at K B 8th, P at Q Kt 3rd. *Black:* K at Q Kt sq, Q at K B 7th, Rs at K R 3rd and 4th, B at QB 2nd, Ps at K 2nd and 6th, Q Kt 3rd; and Q R 2nd. White, playing first, to mate in five moves.

DELTA.—THE CHESS CONGRESS.—We certainly cannot without reservation congratulate the English players either on the skill displayed or on the success achieved by them in the "Grand" Tournament. So radically defective, however, were the arrangements of competition, except as regards the first prize, which was fairly and legitimately earned by Herr Andersen, that the whole contest can scarcely be looked upon as other than a chess lottery. The conditions of the "Handicap" were undoubtedly arranged on a more satisfactory basis. Our only regret is that the winner of the first prize, Mr. Mackenzie, who has defeated five successive opponents in admirable style, did not enter for the chief tourney, as in that case we should probably have been spared the humiliation of seeing the first two prizes carried off by foreigners.

SOLUTIONS OF PROBLEM No. 964 by Annis, F. W. G., I. R., Cæsr, Jos, Lex, Symbelott, Dereven, Q. E. D., 1862, Box and Cox, G. F., Willy, P. F., Garryowen, Try Again, Felix, W. W. F., M. F., I. R., White Surrey, Gorilla, B. of Bradford, Horace, Lord Dundreary, C. B. B., Harry Biewer, Peon, Query, F. P. T., W. S. W., Touchstone, Adelphi, Davus, Stanley, I. Gilbert, Boston Stump, Arkansas, Larry, F. M. D., A Farmer, G. D., L. R., H. S., Tom Thumb, Miles, Cantab, R. E. N., A Schoolgirl, Pip, Johannes, J. W. D., R. P. R., W. M. D., Mercator, Q. C., I. M'M., S. G. W., Sidney, A German Reader, I. R. G., Hastings, E. J. J., G. T., War Office, E. A. S., I. Parry, R. I. H., I. Craig, C. D., G. W. C., Pendennis, W. H. F., T. Burney, Victoria, E. S. S., De R., H. H. P., Hermes, Omicron, T. C. R. W., R., Athenæum Club; F. Walsh, Burnside, C. J. B., W. S. K., Major H., Kilkenney, T. H. D., Gerald, Mitre, D. D., Lionel, I. R. S., Santa Cruz; D. S., Maurice's; I. F. A., Delta, F. H. N., I. C. H., S. F. K., A Subscriber, Percy, I. S. G.; E. F., Dover; R. M., W. B. B., N. C., Miranda, F. C. B., Aunt Sally, Oliver Twist, F. D. L., H. B., A French Exhibitor, G. I. P., Little Derrit, Gamma, Henry Frau, Bycus, A, W. Ensor, Charlton, T. B. B., and F. Thompson, are correct. All others are wrong.

SOLUTION OF PROBLEM 964.

WHITE.	BLACK.	WHITE.	BLACK.
1. Kt to Q B 5th (If White play the more obvious move of Rook to K 7th, Black's reply is, E to K 3rd.)		2. Q mates at K B 4th, K 8th, Q Kt 7th, or Q R 8th	
1.	B takes R, or (a)	(a) 1.	P takes P
2. Q to K 4th	Any move	2. Q takes B (ch) 3. P takes P	K to B 2nd or R 2nd Mate.

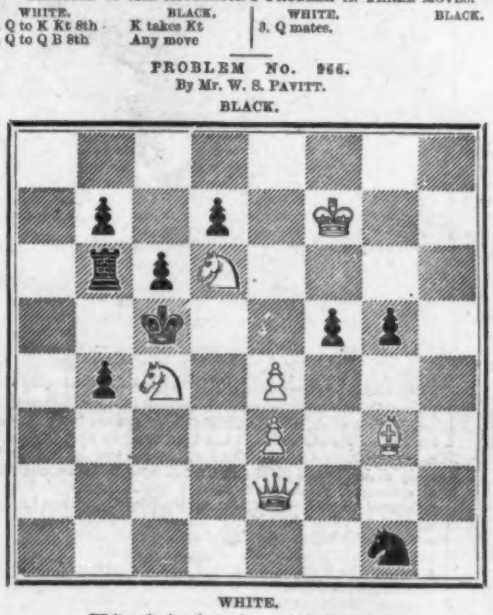
SOLUTION OF PROBLEM NO. 965.

WHITE.	BLACK.	WHITE.	BLACK.
1. Q takes Q R P	P to Q B 4th (best)	(a) 2.	P to Q Kt 7th
2. Q to Q R 2nd	P takes Q or (a)	(If R takes Q, then follow R takes Q (ch), and mate next move.)	
3. R to Q Kt 2nd	Any move	3. Q takes P	Any move
4. R to K B 2nd.	Mate	4. Q to K B 2nd, or B takes K P.	Mate.

SOLUTION OF MR. MITCHESON'S PROBLEM IN THREE MOVES.

WHITE.	BLACK.	WHITE.	BLACK.
1. Q to K Kt 8th	K takes Kt	3. Q mates.	
2. Q to Q B 8th	Any move		

PROBLEM NO. 966.
By Mr. W. S. PAVITT.
BLACK.



WHITE.
White, playing first, gives mate in three moves.

CHESS IN LONDON.

A good specimen of the "Evans" played at the Grand Cigar Divan between Mr. ANDERSSEN and the Rev. Mr. M'DONNELL.
(*Evans' Gambit.*)

BLACK (Mr. M.)	WHITE (Mr. A.)	BLACK (Mr. M.)	WHITE (Mr. A.)
1. P to K 4th	P to K 4th	21. Q to K R 3rd	Q to K 3rd
2. Kt to K B 3rd	Kt to Q B 3rd	22. Q B takes Q Kt	Kt takes B
3. B to Q B 4th	B to Q B 4th	23. P to K B 5th	
4. P to Q Kt 4th	B takes Kt P	(After this White's game, which has long been in a bad state, cannot be saved.)	
5. P to Q B 3rd	B to Q B 4th	23.	Q to Q B sq
6. Castles	P to Q 3rd	24. P to K B 6th (ch)	K to Kt sq
7. P to Q 4th	P takes P	25. P to K 6th	
8. P takes P	B to Q Kt 3rd	(The killing stroke—winning a piece without drawbacks.)	
9. Kt to Q B 3rd		25.	Q takes P
(This gives a strong and lasting attack.)		26. Q takes Q	P takes Q
9.	B to K Kt 5th	27. P takes Kt	K to B 2nd
10. B to Q Kt 5th	B takes Kt	28. R takes K Kt P	K takes P
11. P takes B	K to B sq	29. R to K Kt 7th (ch)	K to Q 3rd
(He cannot save the piece conveniently except by moving his King.)		30. Q B to K Kt sq	P to Q B 4th
12. Kt to K 2nd	Q Kt to K 2nd	31. P takes P (ch)	B takes P
13. P to K B 4th	P to Q 4th	32. K R tks Q Kt P	B takes K B P
14. P to K 5th	Kt to K B 3rd	33. Q R to Kt 7th	B to Q Kt 3rd
15. K to R sq	K Kt to K B 4th	34. K R to Q 7th (ch)	K to K 4th
16. R to K Kt sq	P to K Kt 3rd	35. Q R to Kt 5th (ch)	K to B 3rd
17. B to Q R 3rd	P to Q B 3rd	36. Q R to Kt 6th (ch)	K to K 4th
18. B to Q R 4th	K to Kt 2nd	37. K R to K 7th, and wins.	
19. B to Q B 2nd	Q to Q 2nd		
20. Q to Q 3rd	P to K R 4th		

Another sparkling *Partie* played at the Grand Cigar Divan between Mr. ANDERSSEN and Mr. BIRD.
(*Ruy-Lopez Knight's Game.*)

BLACK (Mr. B.)	WHITE (Mr. A.)	BLACK (Mr. B.)	WHITE (Mr. A.)
1. P to K 4th	P to K 4th	(It is not often we meet with a player who dashes a discovered check such as Black now threatens. Mr. Andersen, however, had evidently well calculated the peril he ran, and the resources at his command to meet it.)	
2. Kt to K B 3rd	Kt to Q B 3rd		
3. B to Q Kt 5th	Kt to K B 3rd		
4. P to Q 4th	P takes P		
5. Castles	B to K 2nd		
6. P to K 5th	Kt to K 5th	20. Q to K 2nd	Kt takes R
7. R to K sq	Kt to Q B 4th	21. Q takes Kt	K to R sq
8. P to Q B 3rd	P takes P	22. Kt to K 3rd	R to Q Kt sq
9. Q Kt takes P	Castles	23. R to K sq	B to Q Kt 2nd
10. Kt to Q 5th	P to K B 3rd	24. Kt to Q 5th	P to Q B 4th
11. Q B to K B 4th	P takes P	(Black never recovered the effect of this move.)	
12. Q B takes P	Q Kt takes B	25. Kt to K 5th	K B takes Kt
13. Kt takes Kt	Kt to K 3rd	26. Q takes B	P to Q B 5th
14. B to Q B 4th	B to Q B 4th	27. B to Q B 2nd	Q to Q 7th
15. Kt to Q 3rd	Q to K R 5th	28. Q to K 4th	Q tks K B P (ch)
16. Q to Q B 2nd	B to Q 3rd	29. K to R sq	B takes Kt, and wins
17. P to K Kt 3rd	Q to K R 3rd		
18. R to K 4th	P to Q Kt 4th		
19. B to Q Kt 3rd	Kt to K Kt 4th		

THE CHESS CONGRESS.

The proceedings of this interesting gathering, after dragging their weary way for nearly three months, show signs at length of approaching to a close. Within the past week the question as to the winners of the first and second prize in the "handicap" has been determined, the final score between Mr. Mackenzie and Mr. Deacon being,
Mackenzie, 2; Deacon 0; Drawn, 2.
The remaining combats are expected to be over by the end of the month.

OBITUARY OF EMINENT PERSONS.

THE COUNTESS OF ESSEX.

The Right Hon. Caroline Janetta, Countess of Essex, was the third daughter of William, eighth Duke of St. Albans, by his second wife, Maria Janetta, only daughter of John Nelthorpe, Esq., of Little Grimsby Hall, Lincolnshire. Her Ladyship was born the 28th of June, 1804, and was married, the 14th of July, 1825, to Arthur Algernon, sixth and present Earl of Essex, and had three sons, two of whom survive her—viz., Viscount Malden, and the Hon. Reginald Algernon Capel, and an only daughter, the late Adela Caroline Harriet, wife of Sir Archibald William Montgomerie, K.T., thirteenth Earl of Eglinton, a nobleman whose recent death, preceded by that of his amiable wife, has been the subject of such public and general grief. The Countess of Essex died at the family seat, Cashiobury Park, Watford, Herts, on the 22nd inst. Her Ladyship was sister of Lord Charles Beauclerk who last November lost his life in nobly endeavouring to rescue the crew of a life-boat during a terrific gale off Scarborough.

THE DEAN OF GLOUCESTER.

The Hon. and Very Rev. Edward Rice, D.D., Dean of Gloucester and Precentor of York, who died on the 15th inst., was the younger son of George Rice, Esq., M.P. for Carmarthenshire, by his wife, Lady Cecil Talbot, in her own right Baroness Dinevor, only child of William, second Baron and first Earl Talbot, who was created Lord Dinevor for life, with remainder to his daughter and her issue male. The Dean of Gloucester was also brother of George Talbot, second Lord Dinevor, and uncle of George Rice, third and present Lord Dinevor. He was born the 19th of November, 1776, and was educated at Westminster School, and graduated B.A. from Christ Church, Oxford, in 1798. Shortly after he took his degree he was elected fellow of All Souls', and proceeded M.A. in 1802. He was soon after named Precentor of York, and in 1812 obtained the rectorship of Great Risington, Gloucestershire. He was made a D.D. in 1820, and Dean of Gloucester in 1825. The Very Rev. Dean married, the 9th of July, 1809, Charlotte, second daughter of General Lascelles, and by her (who died in 1832) had five sons (three of whom survive him) and seven daughters (three of whom are living)—viz., Charlotte, wife of the Rev. Alexander Cameron; Maria, wife of the Rev. Edward Bankes, Canon of Gloucester and Bristol and Chaplain in Ordinary to the Queen; and Lucy Horatia, wife of the Rev. William Escott. The Dean's eldest son, the Rev. Francis William Rice, Vicar of Fairford, Gloucestershire, succeeds his father in the heirship-presumptive to his cousin's peerage, the barony of Dinevor.

JOHN LEWIS RICARDO, ESQ., M.P.

This gentleman was son of Jacob Ricardo, Esq., and nephew of David Ricardo, Esq., M.P. for Portarlington, the well-known political economist. He was born in 1812, and was from an early age devoted to commercial pursuits. He was the founder of the Electric Telegraph Company, and it was through his energy and ability that a commercial telegraph system was established in this country. He was also chairman of the North Staffordshire and the Norwegian Railway Companies and a director of the London and Westminster Bank. Mr. Ricardo entered Parliament in 1841 as the Liberal member for Stoke-upon-Trent, and continued to represent that borough till his death. He was a firm and indefatigable advocate for the abolition of the corn laws and the navigation laws. For some years before the latter code was repealed, under Lord Aberdeen's Ministry, Mr. Ricardo had most effectively attacked both in the House and by his writings. In 1847 he moved for his famous Committee on the policy and operation of the navigation laws. It is well known that that Committee's proceedings and Mr. Ricardo's pamphlet (published in 1847 by Charles Gilpin, now M.P. and Secretary of the Poor-law Board) had great influence on public opinion, and led to the eventual repeal of the obnoxious enactments. During the Russian War Mr. Ricardo published a well-known pamphlet insisting that the struggle should be conducted on principles the least injurious to the commerce of Great Britain. The honourable gentleman, who was a Deputy Lieutenant of Elginshire and a magistrate for Hampshire, married, the 11th of August, 1841, Lady Catherine, elder daughter of General the Hon. Sir Alexander Duff, K.C.H., granddaughter of Alexander, third Earl of Fife, and sister of James, fourth and present Earl. Mr. Ricardo died on the 20th inst. at his town house, 31, Lowndes-square.

WILLS AND BEQUESTS.

The will of the Right Hon. Robert John Verney, Lord Willoughby de Broke, of Compton Verney, near Stratford-on-Avon, Warwickshire, and of Grosvenor-street, St. George's, Hanover-square, was proved in London on the 14th inst. by the Right Hon. Georgiana Jane, Lady Willoughby de Broke, the relict, sole executrix. The personalty sworn under £70,000. His Lordship succeeded to to the title in 1852, on the death of his uncle, who had no issue, and inherited the barony through his mother, the sister of the eighth Baron, by writ of summons. This nobleman is of ancient descent. He acquired great popularity in the sporting world, particularly in Warwickshire, being joint master of the foxhounds in that county. His decease was premature, having only attained the age of fifty-three. His Lordship is succeeded in his title and estates by his eldest son, a minor, in his nineteenth year. The will, which is of considerable dimensions, bears date, together with a codicil, 1859, and its dispositions are confined to the relict and family. To Lady Willoughby de Broke he leaves an immediate legacy of £6000, together with a life interest in the Kineston estate, Warwickshire; also some plate bearing the Barnard crest, and appoints her Ladyship residuary legatee of the personalty. To his eldest son, now Lord Willoughby de Broke, the estate of Compton Verney is devised, subject to the payment of certain portions to testator's younger children; and on the decease of the relict the eldest son also takes the Kineston estate, and to him is devised all other real estates.

The will of Colonel Peter Tripp, of St. Clare Cottage, Spring Vale, Isle of Wight, was proved in London on the 4th ult., the executors being his relict, the Rev. J. Power, M.A., of Ryde, and the Rev. Robert Tripp, of East Worldham, Hants. The gallant Colonel, who died in June last, executed his will in 1860, which is brief—disposing of the whole of his property to his wife for her life, and upon her decease their youngest daughter is to receive from the estate an annuity of £200 for her life; it appoints his other children the residuary legatees.

The will of the Rev. Dr. John Leifchild, D.D., of Fitzroy-terrace, Gloucester-road, Regent's Park, was proved in the London Court by his son, the Rev. John Roby Leifchild, M.A., sole executor, who applied to the Probate Court in person under the new arrangement. The personalty was sworn under £4000. This highly-respected minister was of the Independent connection. He was popular as a preacher, as well as for his piety, his zeal, and his Christian philanthropy; and these traits of usefulness were extended over a long period, the venerable Doctor having attained his eighty-third year. The will is short, and merely confined to the members of his family. The testator bequeaths to a niece residing with him a legacy of £700 (independent of gifts bestowed upon her in his lifetime), and this, he states, is "for her tender care of me and the prudent management of my household concerns since the decease of my dearest wife." There are legacies of small amount to two other nieces. To his only son, the Rev. John Roby Leifchild, to use the venerable testator's own words, "who for many years has been my faithful companion and helper," he bequeaths the residue of his entire property.

[It may be useful to inform our readers that, amongst the new arrangements in the Probate Court, the wills of persons may in their lifetime, for more perfect security and in a sealed envelope, be deposited in that court, on the payment of a small fee.]

The Rev. John Rice Byrne, of University College, Oxford, has been appointed one of her Majesty's Assistant Inspectors of Schools.

The Emperor Alexander has ordered to be restored to the city of Warsaw all the volumes of the library which were confiscated after the Polish revolution of 1831 and transported to St. Petersburg. This restitution comprises 17,000 volumes.

The committee appointed by the Queen of Spain to organise at Madrid a Universal Exhibition, similar to those which have been held in London and Paris, has issued a notice that it will receive plans for the construction of the building.

THE PEOPLE OF MEXICO.—The Mexican population comprises five different classes:—1. The whites, constituting the aristocracy of the country, and generally called Creoles. They are the direct descendants of the Spaniards, and their number is estimated at 300,000. 2. Those who consider themselves whites. They are the descendants of Spanish and Indian parents. Few of them are rich; they chiefly follow the military profession or that of the Bar, or else hold situations under Government. They have a marked aversion to every kind of honest labour, and constitute the nucleus of the Republican party. Juarez belongs to this class, which numbers about 800,000. 3. The Indians, reduced to a state of the most abject misery and servitude. They live in villages, and constitute the agricultural class. Their number is about 4,000,000; they speak the Aztec or old Mexican language. Although slavery is not recognised by law, yet practically the Indian is his employer's slave to all intents and purposes; for, as the wages he gets for his daily labour are insufficient to maintain him, he is obliged every now and then to apply to his employer for a loan, and from that moment he gets into an inextricable slough of debt, and must work on to the end of his days without the slightest hope of ever redeeming himself. 4. The Mestinos, or mixed races, distinguished by various names: the issue of an indian and a negro is called a zambo; that of a white and a negress, a mulatto; of a white and a mulatto female, a terzeron; of the latter and a white, a quadroon; and so on to the eighth or tenth shade of colour. The issue of the indian and negro constitutes the gipsies of the country; in the towns they are called leperos, and do nothing but drink, gamble, and commit every kind of outrage. It is from their number the bands of highway robbers which infest the country draw their recruits; some join the army and others become servants. The number of Mestizos in the country is stated at 1,500,000. 5. The Europeans, among whom the Spaniards predominate. The number of the latter is about 40,000; they are generally nicknamed Gachupinos, which, in the old Mexican tongue, means pricking with the heel, in allusion to the spurs the first conquerors wore. Next follow the North Americans, called Gringos, or sputterers; then the English, French, Germans, Swiss, &c., constituting a very small number in all. The whole population of the country does not exceed 7,000,000.

THE INTERNATIONAL EXHIBITION.

WORKS IN CARVED WOOD BY F. THEYER.

THE two little works which we engrave may be regarded as examples of the articles of virtù and utility which Mr. Theyer exhibits in the Vienna Court of the north-west transept, the whole of which are full of taste and merit.

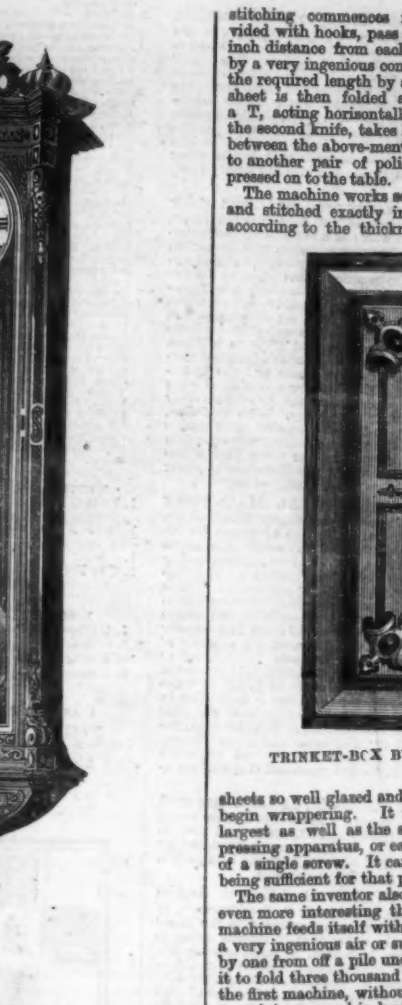
The one object which we have selected is an album, the covers of which are carved, enriched with a plaque of porcelain bearing a group of flowers and jewel-like inlays of red and green stone. The wood-carving is in style Elizabethan, but purity of character gives place to modern taste.

ALBUM COVER BY F. THEYER, OF VIENNA, IN THE AUSTRIAN COURT.

The other figure will serve to convey some idea of a box which, as shown in the Engraving, is viewed from above. This is purer in style of art, being also Elizabethan, and is rich and beautiful in aspect, as rich plaques and jewel-like masses of lapis-lazuli and stones of various colours are judiciously applied to the work. Our readers will find the collection of articles by this manufacturer worthy of attentive notice.

CLOCK BY W. SCHÖNBERGER, OF VIENNA.

THE clock which we engrave is one of a series which occur in the Austrian Court of the Exhibition, and is worthy of notice in view of the neatness and pleasing aspect of its appearance and the low price of the articles of which this is an example. It is elegant in general contour, simple in design, and well finished, and we are assured that its qualities as a timekeeper are excellent; but in this respect we have had no opportunity of judging of its merits.



CLOCK BY W. SCHÖNBERGER, OF VIENNA, IN THE AUSTRIAN COURT.

STEREOSCOPE BY MR. EMANUEL.

IVORY is one of the most beautiful objects that can be used in ornamental work, and its admirable properties have been appreciated from time immemorial. It has been used in architecture, as witness the ivory doors described by Herodotus; and in furniture, from the ivory curule chairs of the Roman consuls to those magnificent pieces of ornament, sofas, couches, and chairs, imported from his Indian proconsulate with which Warren Hastings furnished his long-coveted seat of Daylesford. Mr. Emanuel, however, seems to think that so beautiful an object should be applied to even higher works of ornament—to those which adorn the person—thus ranking it with gold and jewels. There is no doubt that the contrast of colours, no less than the soft blending of them, will produce a very good effect. It is questionable, however, whether the great beauty of the ivory will last. It has a tendency to blanch and to turn yellow; but in its present state, new from the workman's hands, it is certainly very charming. Amongst the larger ornaments produced by this jeweller we engrave a stereoscope mounted in ivory, which is profusely decorated with an ornamentation of gold set with jewels. The variety of coloured stones, with their gold settings, produces a very gorgeous effect, and especially fits it for the possession of the Eastern potentate for whom it is, we believe, destined. The design is at once curious and novel, and the object very naturally attracts a great number of people as they pass Mr. Emanuel's trophy.

STEREOSCOPE BY MR. EMANUEL, OF BROOK-STREET.

MR. GRUNER'S PATENT FOLDING, PRESSING, AND STITCHING MACHINE.

EVERY invention calculated to lessen the cost of books, pamphlets, stationery, &c., to accelerate and simplify their manufacture, claims all the more our attention, since we have, happily, abolished the tax on paper and knowledge. We therefore believe that a description of this machine will be appreciated by our readers. This compact little folding-machine, a Swiss invention, is exhibiting in the western annexe (No. 110, Switzerland) and is constructed to make a perfect register, and to fold printed or white sheets of paper with far greater precision than the most experienced hands can do it, at the rate of 1400 to 1500 sheets of any size per hour, and it presses and stitches the sheets at the same time. The advantages arising to employers of such machines are so various and manifold that we will not attempt to describe them, and leave it to every one to form his own judgment.

The following is a description of the manner in which this machine works:—The sheets are put singly by a boy under the points of the machine, in the same manner as with the printing-machine. A knife moving nearly vertically up and down takes hold of the sheet lengthwise in the centre, draws it through a slip in the table, and the first fold is made. The knife returns instantly, and the sheet is taken by a second vertical knife, moving from the left to the right, folding it at a right angle to the first fold. This double-folded sheet is now opposite a pair of ribbed rollers (cylinders). Before the third fold is made the stitching commences in the following way:—Two needles, provided with hooks, pass through the middle of the sheet, at about an inch distance from each other, drawing the cotton through, which is, by a very ingenious contrivance, unwound from a bobbin and cut to the required length by a peculiarly-constructed pair of scissors. The sheet is then folded a third time—viz., a knife, in the shape of a T, acting horizontally, and, consequently, at a right angle with the second knife, takes hold of the middle of the sheet and pushes it between the above-mentioned ribbed rollers, whence it passes directly to another pair of polished rollers, from which it comes glazed and pressed on to the table.

The machine works so correctly and truly that the sheets are folded and stitched exactly in the centre. As the rollers are adjustable according to the thickness of the paper, the folds are so flat and the

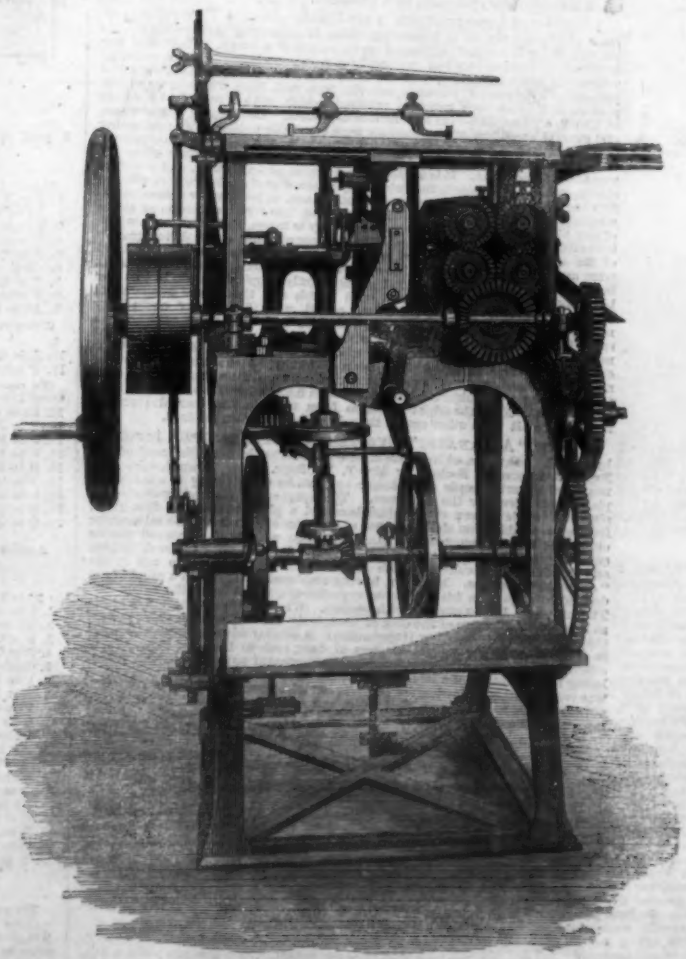
TRINKET-BOX BY F. THEYER, OF VIENNA, IN THE AUSTRIAN COURT.

sheets so well glazed and pressed that the bookbinder can immediately begin wrappering. It is, moreover, so constructed as to fold the largest as well as the smallest sheets, and both the stitching and pressing apparatus, or each singly, may be detached by the loosening of a single screw. It can be worked by either steam or hand, a boy being sufficient for that purpose.

The same inventor also exhibits a second folding-machine, which is even more interesting than the first one, just now described. This machine feeds itself without any human aid whatsoever by means of a very ingenious air or sucking apparatus, which takes the sheets one by one from off a pile under the horizontal folding-knife, thus enabling it to fold three thousand sheets per hour with the same precision as the first machine, without, however, making such perfect register, as no points are used in laying on, and it is, therefore, best adapted for the folding of newspapers, periodicals, &c., where a perfect register is not absolutely required.

The patentee furnishes these machines to fold sheets of any size, for two, three, or four breaks, at a comparatively low price; and, to judge from the many favourable testimonials from some of the largest and most renowned Continental publishing firms in his possession, these machines have proved themselves highly useful, saving both time and money and are daily getting more into use on the other side of the Channel, where hand-labour, which it entirely superseded, is even much cheaper than with us.

The sole agents for the sale of these machines for Great Britain and the colonies are Messrs. Bamberger Brothers, 4, Skinner's-place, Size-lane.



GRUNER'S PATENT FOLDING, STITCHING, AND PRESSING MACHINE.

LONDON: Printed and Published at the Office, 198, Strand, in the Parish of St. Clement Danes, in the County of Middlesex, by GEORGE C. LEIGHTON, 198, Strand, aforesaid.—SATURDAY, AUGUST 30, 1862.